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0. UMTA-MA-06-0031-73, II

ELECTROMAGNETIC ENVIRONMENT MEASUREMENTS
OF PRT SYSTEMS AT "TRANSPO® 72"
VOLUME II
DASHAVEYOR SYSTEM



Earl E. Jamison



JANUARY 1974

FINAL REPORT

DOCUMENT IS AVAILABLE TO THE PUBLIC
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INFORMATION SERVICE, SPRINGFIELD,
VIRGINIA 22151.

Prepared for
DEPARTMENT OF TRANSPORTATION
URBAN MASS TRANSPORTATION ADMINISTRATION
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Washington DC 20590

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TRANSPORTATION

MAR 28 1974

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Technical Report Documentation Page

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12. Sponsoring Agency Name and Address Department of Transportation Urban Mass Transportation Administration Office of Research, Development and Demon. Washington DC 20590		15. Supplementary Notes *under contract to Department of Transportation. Transportation Systems Center, Kendall Square, Cambridge MA 02142	
16. Abstract An X-Y plot is made of the radiated Electromagnetic signals and noise between 1KHz and 50KHz at each of the four Personalized Rapid Transit (PRT) sites at Dulles International Airport. The PRT systems were operated individually to establish the signal characteristics of each system. A spectrum analyzer was used to view the frequency spectrum broadband prior to recording and a Polaroid scope camera was used in conjunction with the spectrum analyzer to photograph signals between 50KHz and 50MHz. This frequency range was sufficiently broad to cover all command and control frequencies of the four PRT systems. The purpose of the measurements program was to establish some base line information on the electromagnetic signal characteristics in the Dulles area in the event there was an interaction between the PRT Command and Control systems and the Federal Aviation Administration Air Traffic Control equipment. The measurements obtained during this series of tests will be used for a comparison with data obtained with no PRT systems operating and later with all four systems operating simultaneously.			
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PREFACE

The work described in this report was performed as part of a test program conducted to evaluate the Safety and Performance characteristics of the four Personalized Rapid Transit Systems (PRT) on display at Transpo[®] 72. Sponsored by the U.S. Department of Transportation, Transpo[®] 72 was the first United States International Transportation Exposition and was intended to demonstrate to the general public new technologies in transportation.

The PRT demonstration program was the responsibility of the Urban Mass Transportation Administration (UMTA) and was conducted to provide detailed engineering test data in addition to providing mature candidates for an Urban demonstration.

RADIATED FIELD NOISE MEASUREMENTS

DASHAVEYOR SYSTEM - TRANSPO[®]'72

1. INTRODUCTION

This technical report presents the data obtained in the performance of tests for radiated field noise at the personal rapid transit (PRT) system of DASHAVEYOR at TRANSPO[®]'72 - Dulles Airport, Washington, D. C. This report covers one of the four tests defined under Item 2 of Contract DOT-TSC-375, and as performed by National Scientific Laboratories.

Item 2 calls for the performance of radiated field noise measurements from each PRT system in the frequency range from 1 KHz to at least 50 MHz, with one PRT system on. The objective of the test was to gather operational data for each of the PRT systems. Such data will enable characterization of the noise increase attributable to system operation, when considered in comparison with the ambient data collected and documented* previously by NSL.

The measurements reported in this document were made during the forenoon of July 28, 1972.

* Technical Report, Item 1, Ambient Radiated Field Noise Survey PRT Systems - TRANSPO[®]'72, March 1972, Contract DOT-TSC-375, Department of Transportation, Transportation Systems Center, 55 Broadway, Cambridge, Massachusetts 02142

2. METHOD OF MEASUREMENT

All measurements were made using test setups and instruments as nearly identical as possible to those used during ambient testing.

2.1 Instruments

The measurements made in the frequency range from 1 KHz to 50 KHz were performed using a Fairchild Model EMC-10 Interference Analyzer. This device is a battery-operated calibrated RFI/EMI meter, which, when operated as a narrowband tunable device, covers the frequency range from 1 KHz to 50 KHz. The receiver incorporates a meter circuit of such design that signal levels are expressed in decibels on a linear scale. In addition, the receiver incorporates circuitry providing buffered, voltage outputs in proportion to meter indication and tuned frequency. A Hewlett Packard Model 3005B X-Y Plotter was driven from the receiver.

Signals were obtained from the electro-magnetic environment by use of either a Fairchild PEF-10 Electric Field Antenna or a Fairchild ALP-10 Magnetic Field Antenna. Both of these antennas are directional in the horizontal plane, therefore, measurements were made for North/South and East/West orientations.

The measurements made in the 50 KHz to 60 MHz frequency range were performed using a Hewlett Packard Model 8552/8553A

Spectrum Analyzer. The analyzer is an extremely versatile instrument in that it has numerous frequency scan and bandwidth settings throughout the frequency spectrum of a few cycles up to 100 MHz. The analyzer was used in four frequency bands - 50 KHz to 100 KHz, 100 KHz to 1.1 MHz, 1 MHz to 21 MHz and 10 MHz to 60 MHz. Data was recorded photographically with a Hewlett Packard 198A oscilloscope camera.

Signals were obtained from the electro-magnetic environment in the 50 KHz to 21 MHz frequency range by using an NSL verticle top loaded whip electric field antenna mounted on a cathode follower. This antenna is non-directional in the horizontal plane. In the 20 MHz to 60 MHz frequency range, an EMCO Model 3104 biconical electric field antenna was utilized. This antenna is directional in the horizontal plane, therefore, measurements were made in the North/South and East/West orientations.

During the tests, the various antennas were attached to the top of a mast mounted on the NSL instrumentation van. An antenna rotator was incorporated in the antenna mast to enable rotation in azimuth. The antenna height was approximately 12 feet above ground.

The various instruments received ac power from a motor generator positioned 150 feet from the van.

2.2 Test Sites

The test sites used during the performance of the measurements were the same locations as denoted in the Item 1 report

for the ambient noise tests. The sites are numbered 1 through 11 for the entire PRT area. Sites 4, 5, and 11 are located at the DASHAVEYOR system as shown in the map, Figure 1. No measurement has previously been made nor reported for Site 11. A complete set of measurements was obtained at each site - magnetic field, 1 KHz to 50 KHz and electric field, 1 KHz to 60 MHz.

2.3 Measurement Technique

Data were obtained in the 1 KHz to 50 KHz frequency range by scanning manually the EMC-10 receiver, using a 50 Hz bandwidth setting. Two recordings have been made for each antenna (magnetic field, electric field) in two orientations (North/South, East/West). The scanning time per recording averaged four to six minutes.

The magnetic field recordings, denoted as MSR type test on the charts, are reproduced in the appendix as the upper half of pages A-2 to A-5, A-15 to A-20, and A-30 to A-33. The dB scale refers to the level at the instruments input connector. Some of the charts have two amplitude scales. Located somewhere along the bottom of the chart is an upside down letter "Y" which denotes the point of changeover from the scale on the left side to the scale on the right side. The lower chart on each page is a plot of approximately one level in each major frequency increment of the chart directly above it. Peaks were selected whenever available. A corrections factor for the antenna (antenna amplitude response is non-linear with frequency) has been included in the

LEGEND

- | | | | | | |
|----|--------------------|----|-------------------------------|----|-----------------|
| 1 | Parking Area 1 | 11 | Exhibit Pavilion | 21 | Terminal |
| 2 | Parking Area 2 | 12 | Personal Rapid Transit System | 22 | Office Building |
| 3 | Parking Area 3 | 13 | | 23 | Hotel |
| 4 | Parking Area 4 | 14 | | 24 | Lake |
| 5 | | 15 | | | |
| 6 | Parking Area 6 | 16 | Water Related Exhibits | | |
| 7 | Parking Area 7 | 17 | | | |
| 8 | Parking Area 8 | 18 | | | |
| 9 | Main Entrance | 19 | | | |
| 10 | Exhibitor Entrance | 20 | | | |

TEST SITE NO.

transpo72[®]

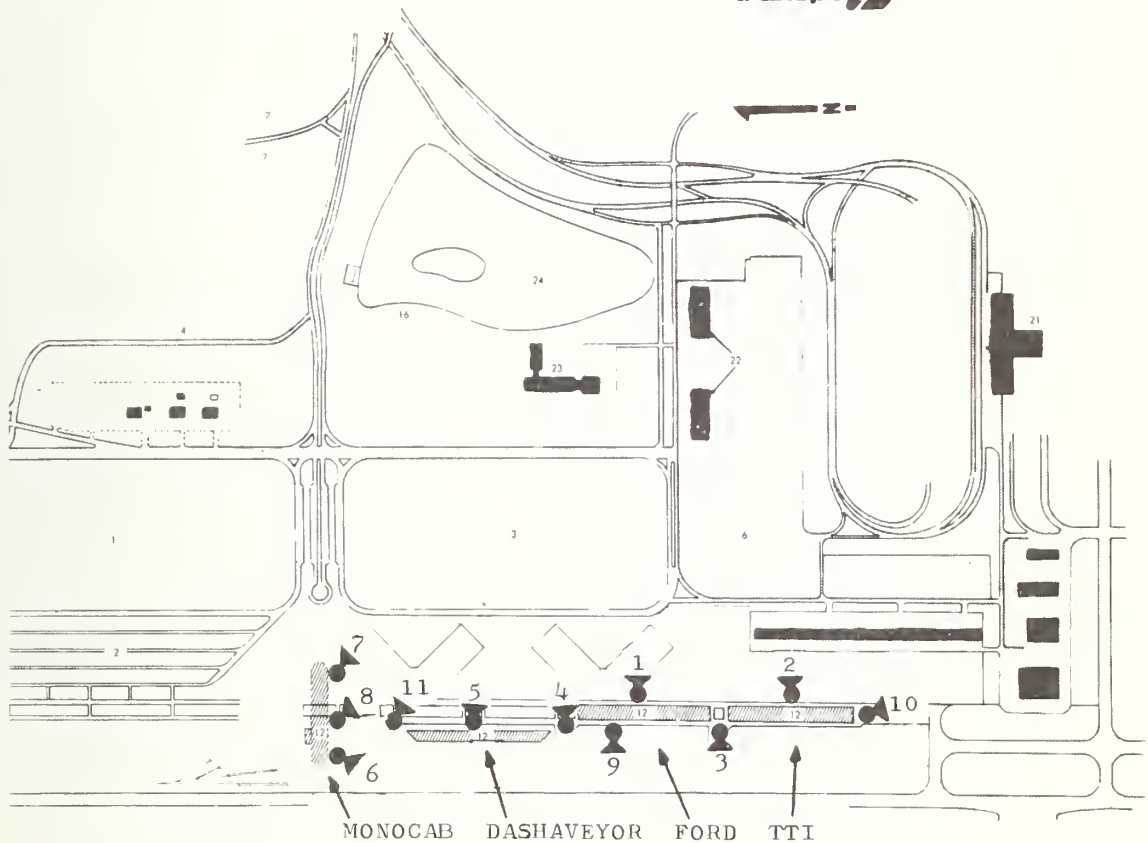


FIGURE 1. PRT TEST SITE LOCATIONS

levels plotted in the lower graphs. In the upper charts, noise peaks recorded in the top major amplitude division are out of the calibrated range of the instrumentation system. Thus, the levels plotted for peaks that enter the upper division are plotted as having an amplitude of the highest level indicated numerically on the chart for that particular frequency.

The electric field chart recordings, denoted as ESR type test on the charts, are reproduced in the appendix on pages A-6 to A-9, A-21 to A-24, and A-34 to A-37. Some of these charts also have two amplitude scales, and they are used in the same manner as described for the magnetic field recordings. In addition, noise peaks recorded in the top major amplitude division are out of the calibrated range of the system. The antenna employed has a constant correction factor for all frequencies, and it has been included in the scale designations on these charts.

Electric field data for the 50 KHz to 60 MHz frequency range were obtained as photographic recordings of spectrum analyzer amplitude/frequency CRT displays. Two recordings have been made for each frequency band - 50 KHz to 100 KHz, 100 KHz to 1.1 MHz, and 1 MHz to 21 MHz. A non-directional antenna was used for the above frequencies. Four recordings were obtained for the 10 MHz to 60 MHz frequency band for which a directional antenna was employed, therefore, two recordings were made for North/South orientation, and two recordings for East/West orientations. The antenna employed for the first three frequency bands

has a constant correction factor for all frequencies, and this is included in the amplitude designations for the recorded data. The antenna employed for the high frequency band has a nearly constant correction factor above 20 MHz and this factor has been included in the amplitude designations for the recorded data. Thus, the calibration levels given on the side of the photograph do not apply to frequencies from 10-20 MHz. The photographic recordings are reproduced in the Appendix on pages A-10 to A-14, A-25 to A-29, and A-38 to A-42.

3. INTERPRETATION OF DATA

Measurements for radiated signals have been made at three test sites associated with the DASHAVEYOR installations. These data are contained in the Appendix. Notations are contained on some of the charts which relate to certain vehicle movements, etc. In other recordings it was not possible to associate specific vehicle movement with the radiated signals.

4. TIME LOG

The time schedule of vehicle function is contained on Pages A-43 to A-48 of the Appendix.

APPENDIX A
RADIATED FIELD MEASUREMENTS DATA

This appendix contains the data obtained during the various tests performed. The data is not presented in numerical sequence as the tests were performed, but rather by site location number from south to north - Site No. 4, 5, and 11. Further, the data are arranged in the following manner - first, magnetic field charts, then electric-field charts and photographs in order of frequency progression. Data is contained herein for Test No's. 269 to 281, 282 to 296, and 297 to 309.

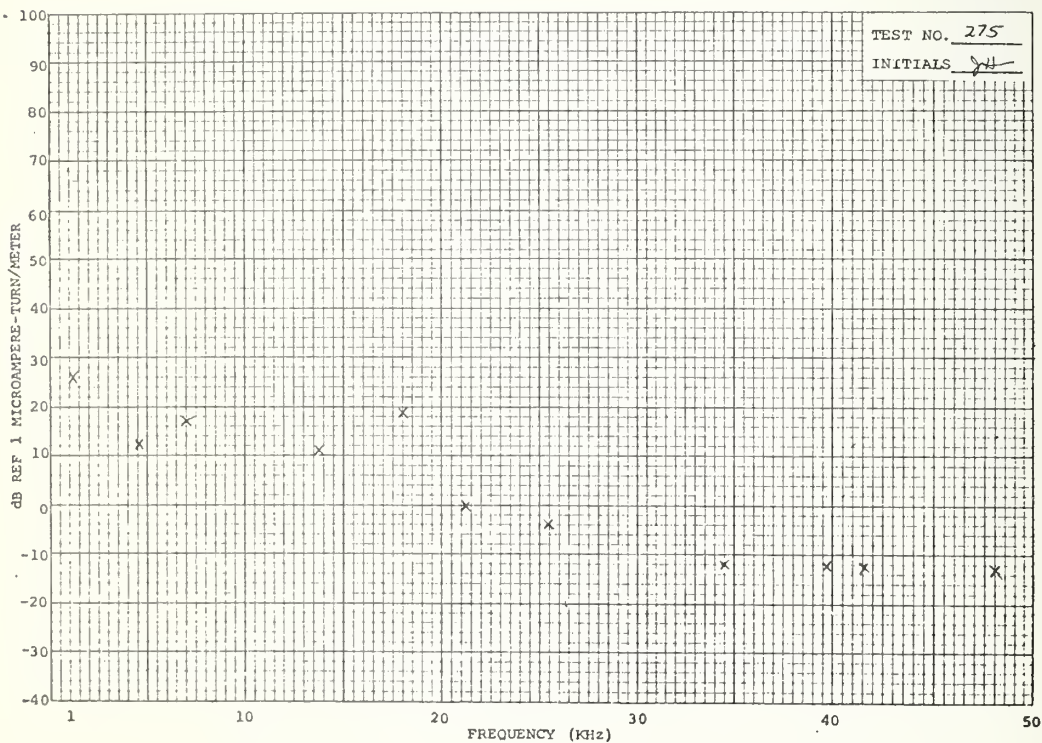
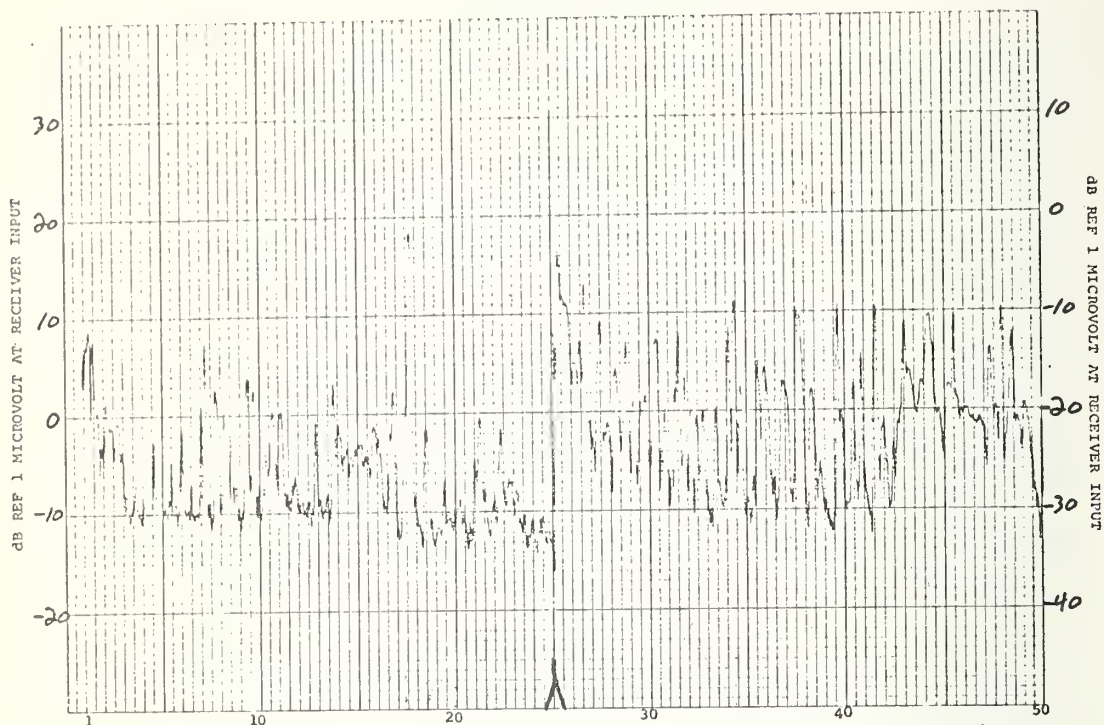
A time log of events for PRT vehicle operations is contained on pages A-43 to A-48.

TEST NO. 275
TEST SPECIMEN 2.64

TEST TYPE MSR F/U
TEST EQUIP. LM 10

BANDWIDTH 50Hz
DATE 7-28-72

0855
88)

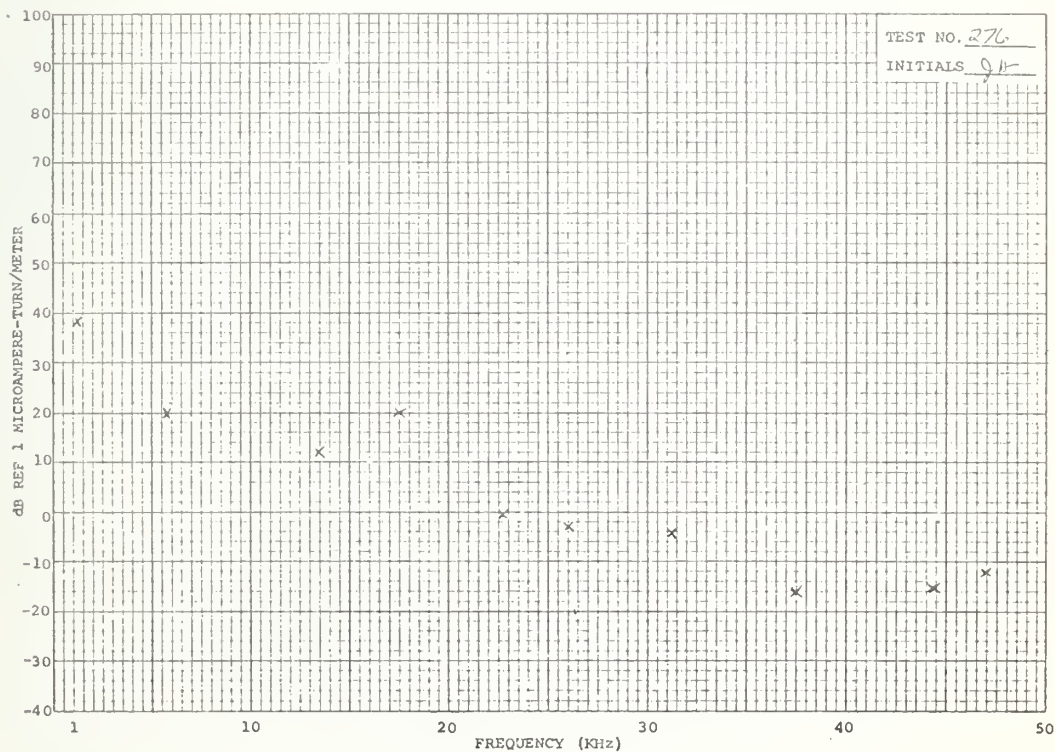
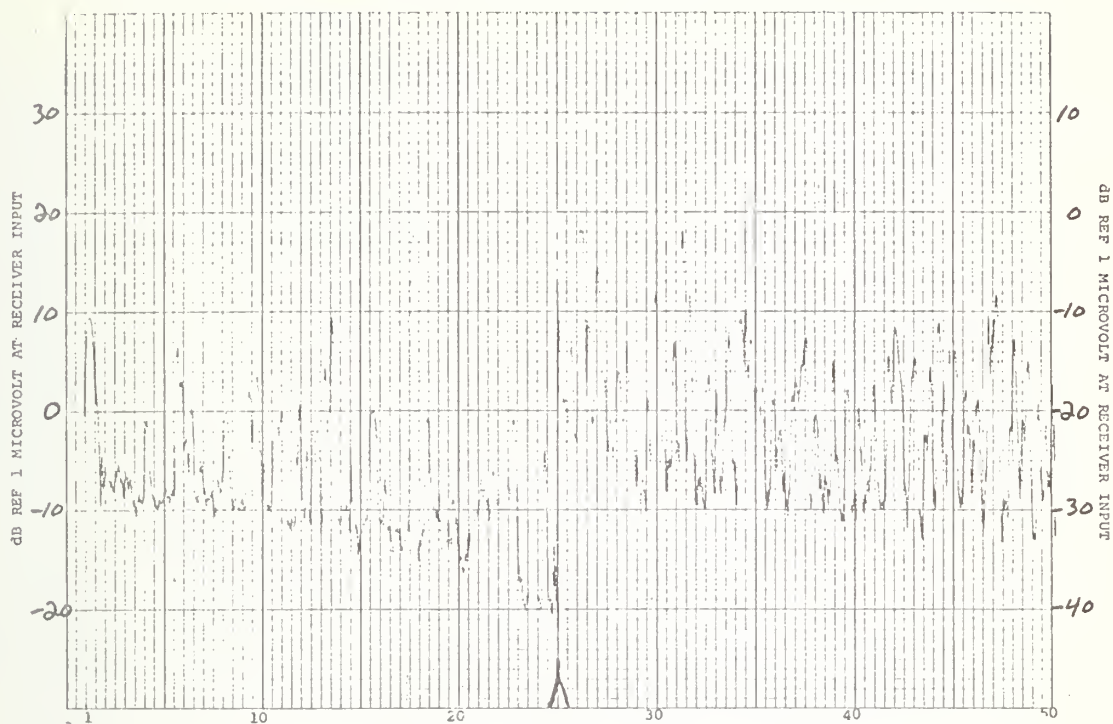


TEST NO. 276
TEST SPECIMEN 8.6.4

TEST TYPE MSP F/L
TEST EQUIP. FM-10

HANDWIOTH 5042
DATE 7-22-72

0859
EJ



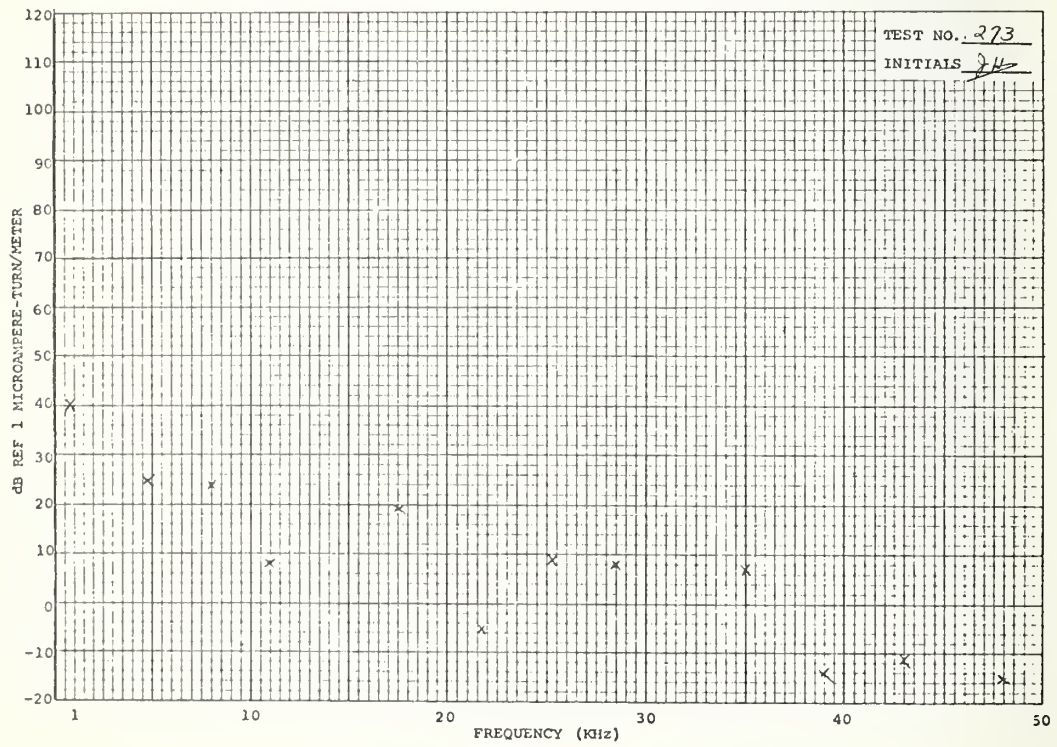
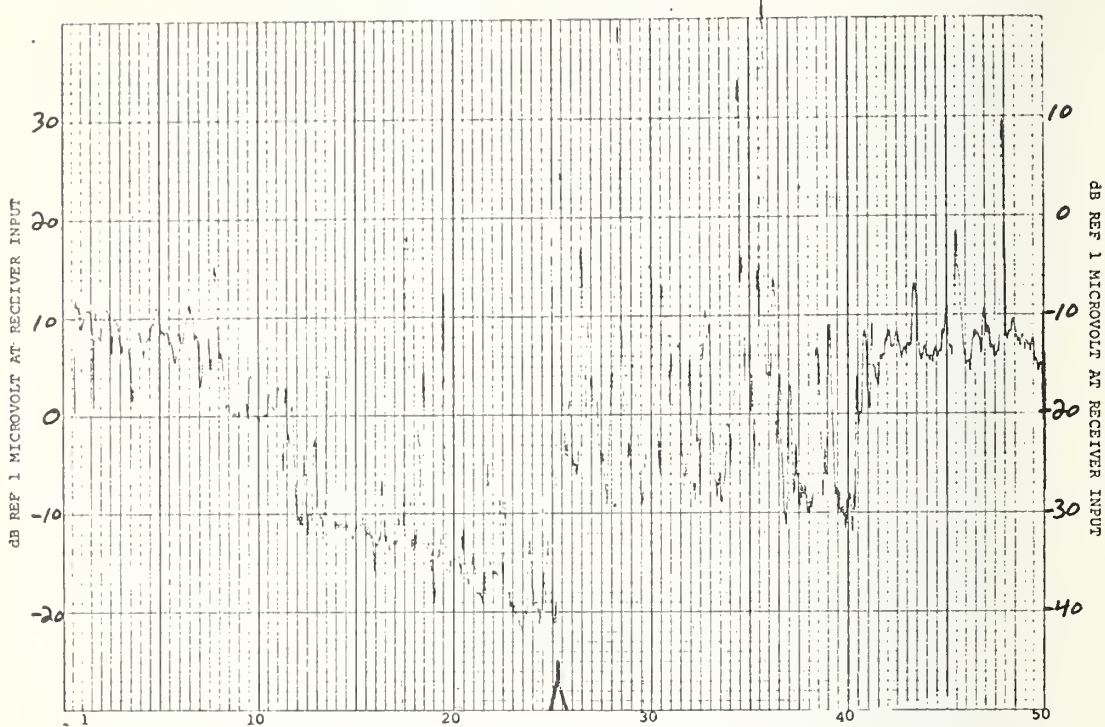
TEST NO. 276
INITIALS EJ

TEST NO. 273
TEST SPECIMEN Sub 4

TEST TYPE MSP N/S
TEST EQUIP. EMC-10

BANDWIDTH 50Hz
DATE 7-28-72

0848
22

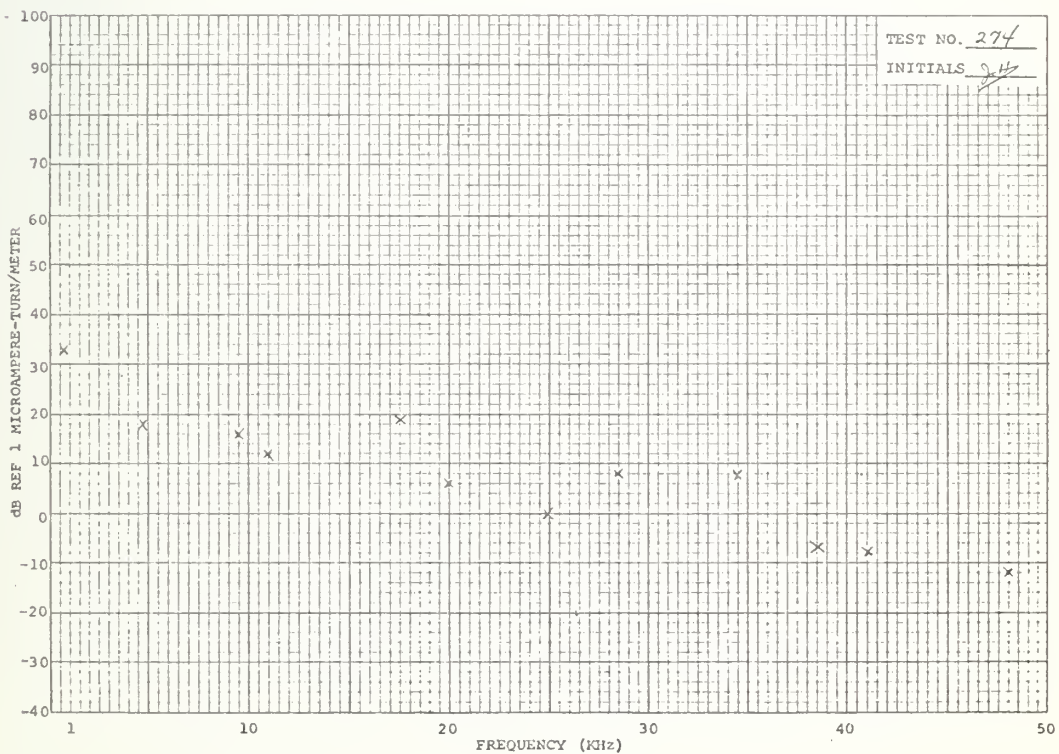
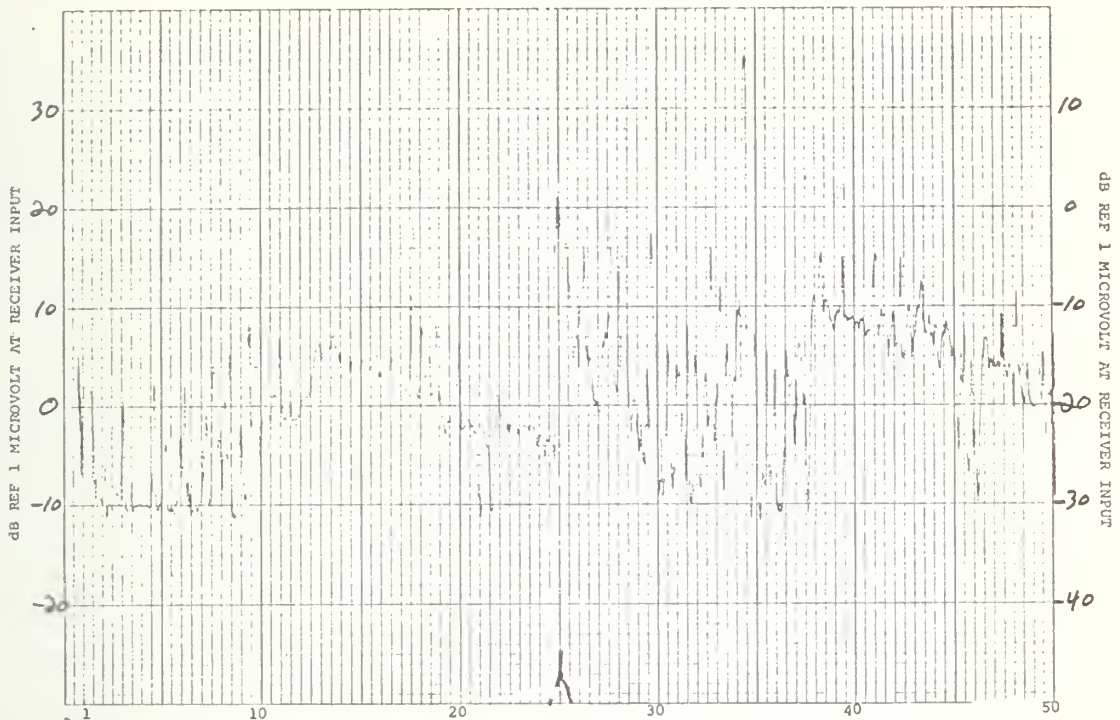


TEST NO. 274
TEST SPECIMEN 264

TEST TYPE MSR N/S
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-28-12

0851
ESP



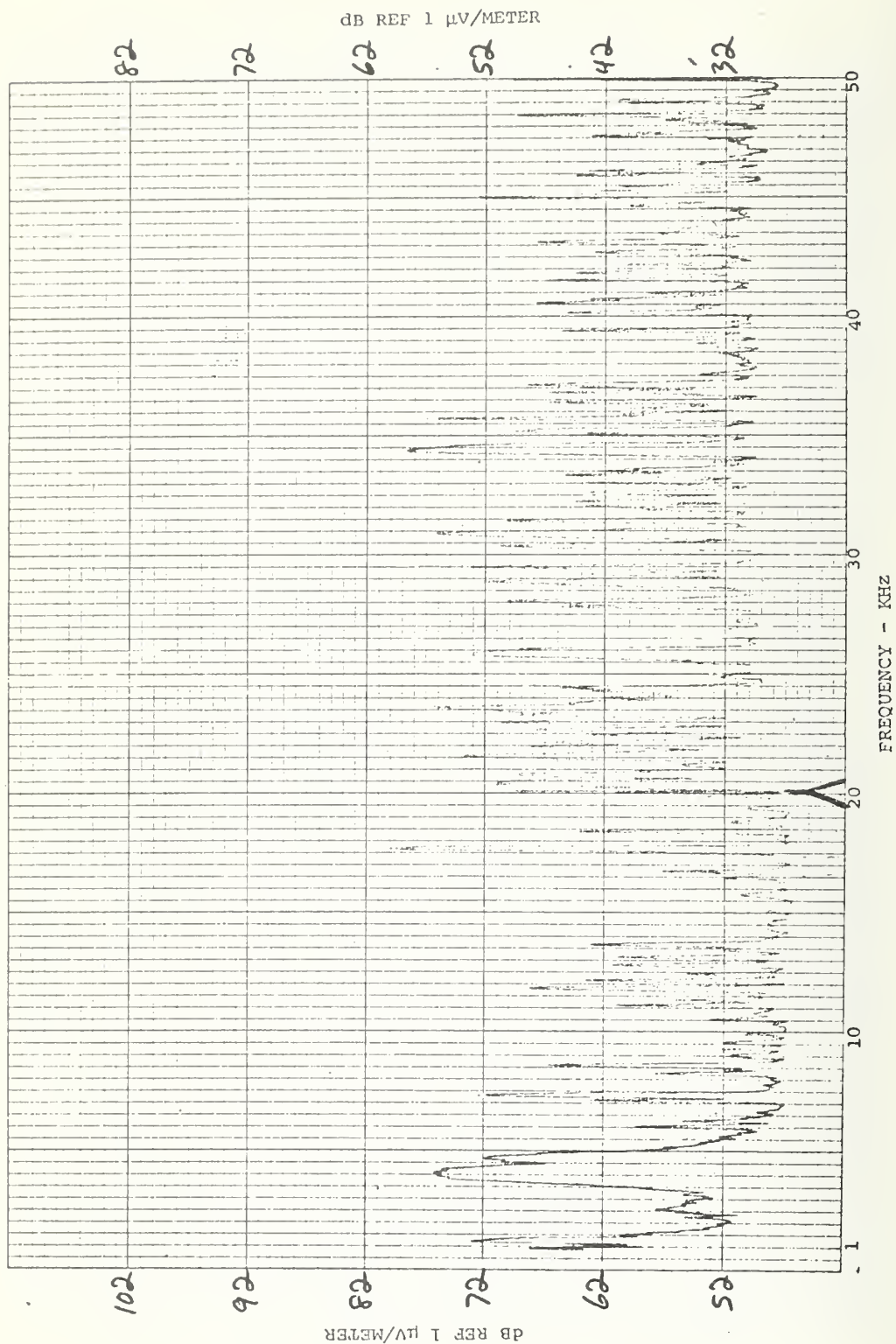
TEST NO. 274
INITIALS 274

TEST NO. 269
TEST SPECIMEN 8-4

TEST TYPE FSR E/W
TEST EQUIP. EMC-10

BANDWIDTH 50Hz
DATE 7-28-72

0830
EG



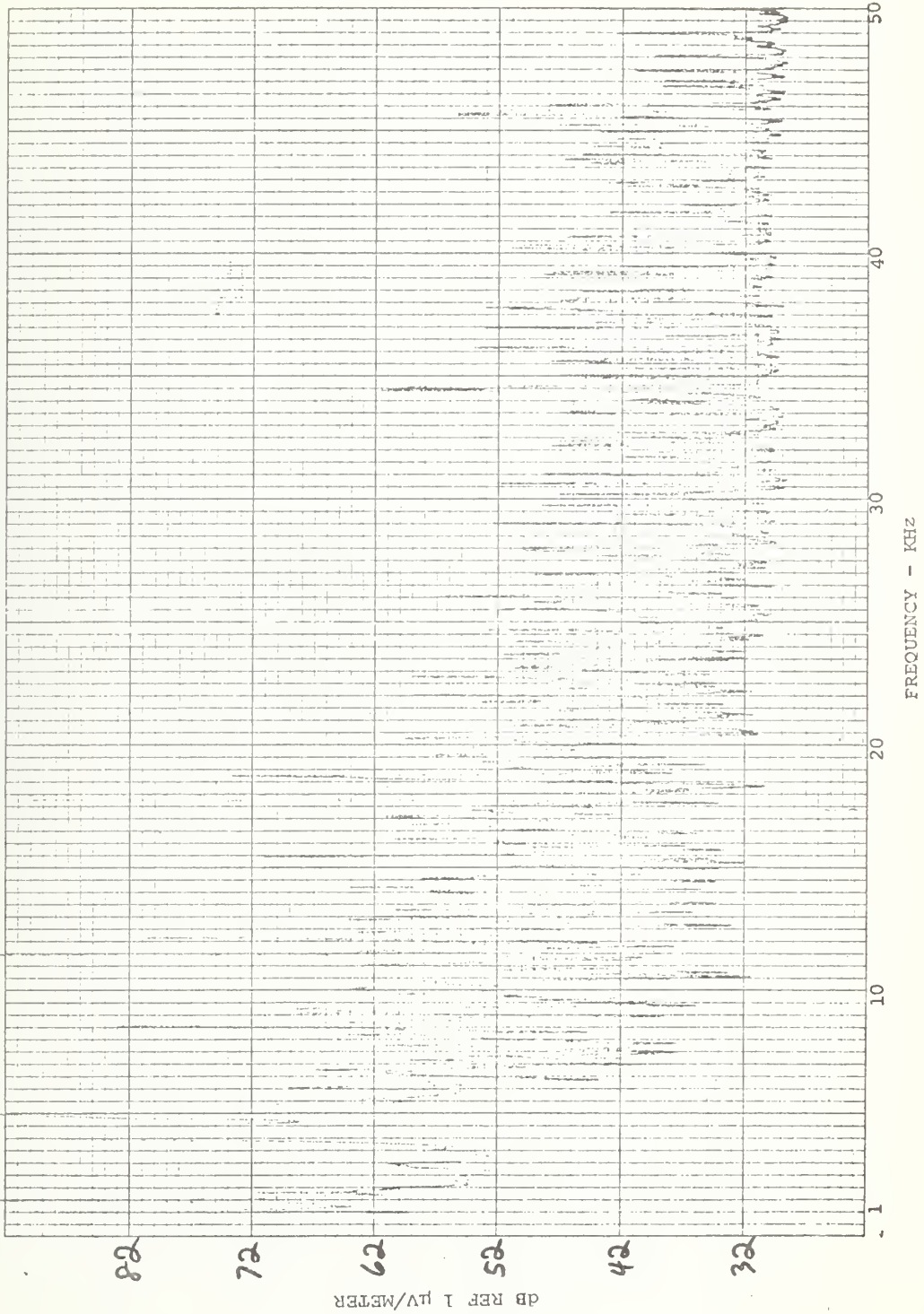
dB REF 1 μ V/METER

6834
EJ

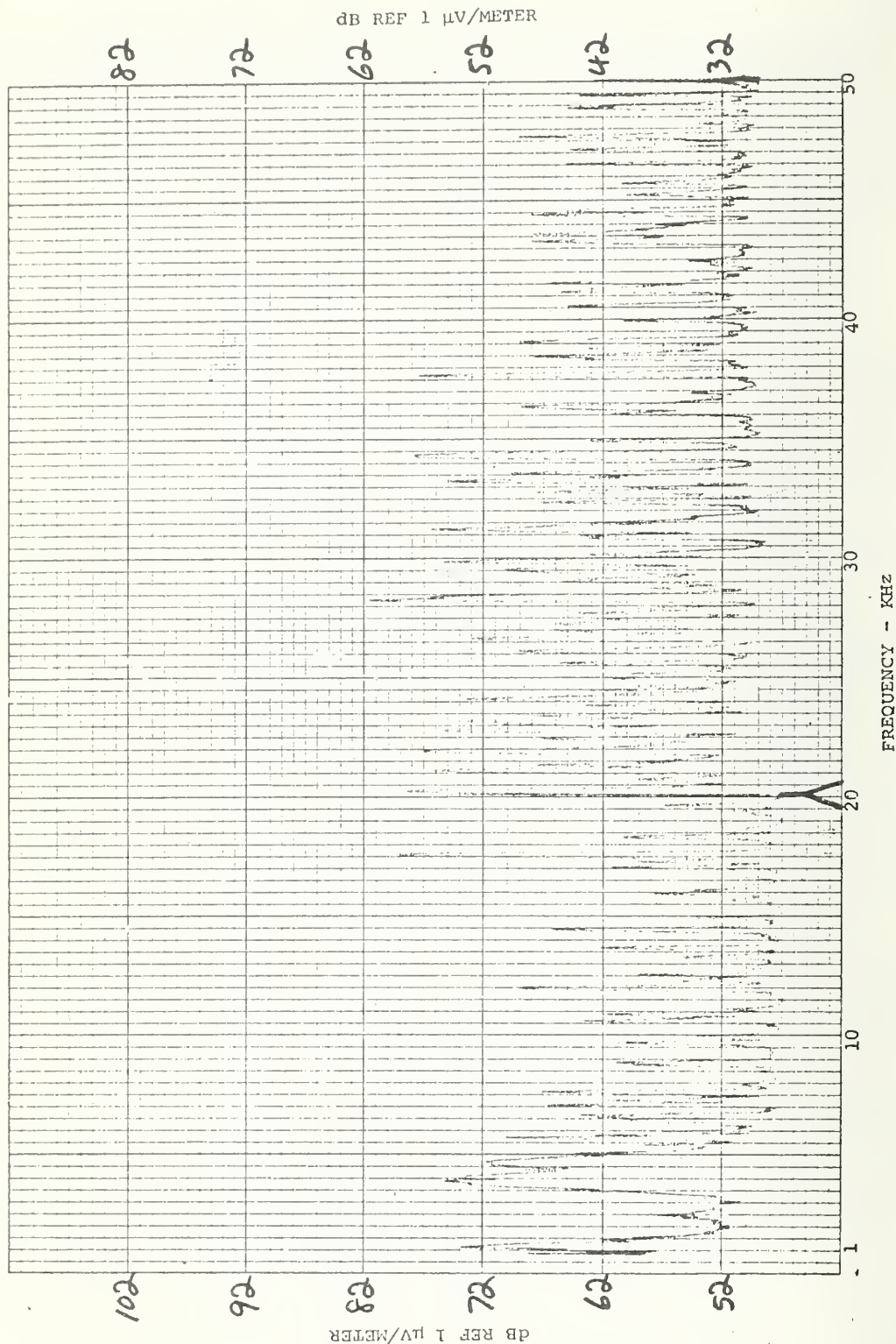
BANDWIDTH 50Hz
DATE 7-28-72

TEST TYPE ESR E/W
TEST EQUIP. EMC-10

TEST NO. 270
TEST SPECIMEN 284 4



TEST NO. 271 TEST TYPE ESR N/S BANDWIDTH 50 Hz 0838
 TEST SPECIMEN Sub 4 TEST EQUIP. EMC-10 DATE 7-28-72 EEJ

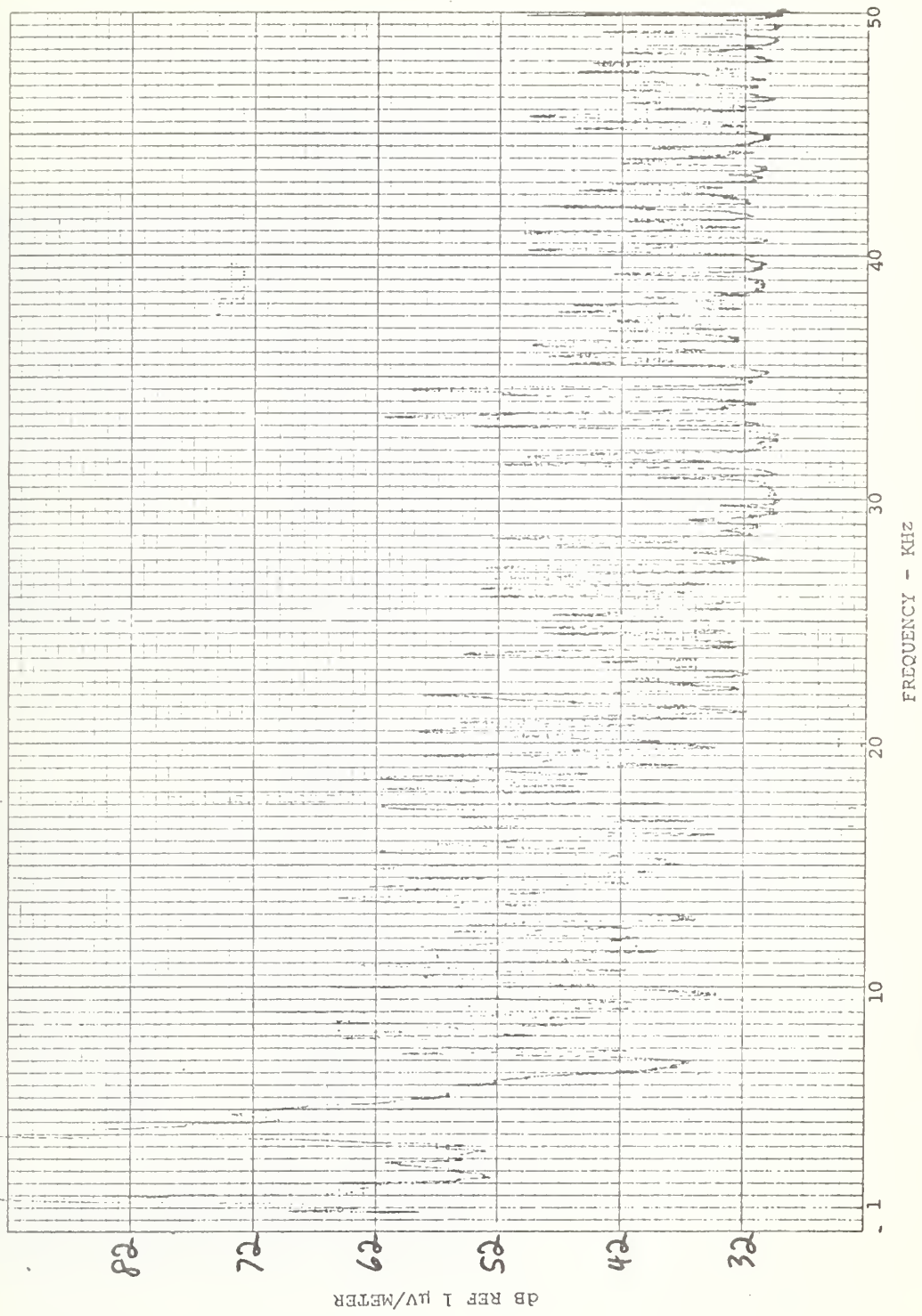


0842
EEJ

BANDWIDTH 50Hz
DATE 7-28-72

TEST TYPE ESR N/S
TEST EQUIP. EMC-10

TEST NO. 272
TEST SPECIMEN 8-10 4



LOCATION: SITE 4 TYPE TEST ESR DATE 7-28-72

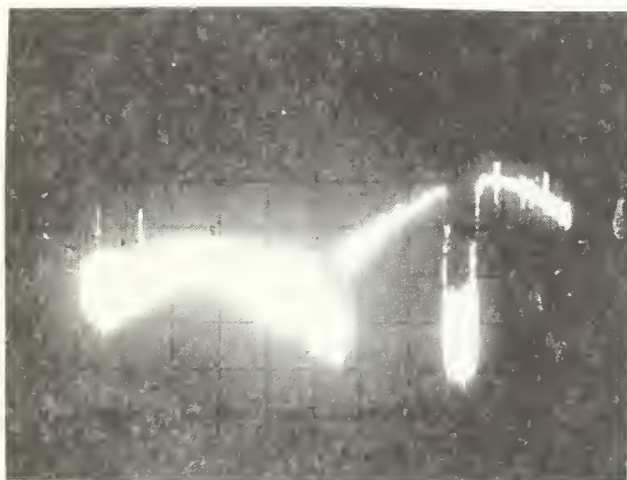


50 FREQ. 75 KHz 100

TEST 277
TIME 0907

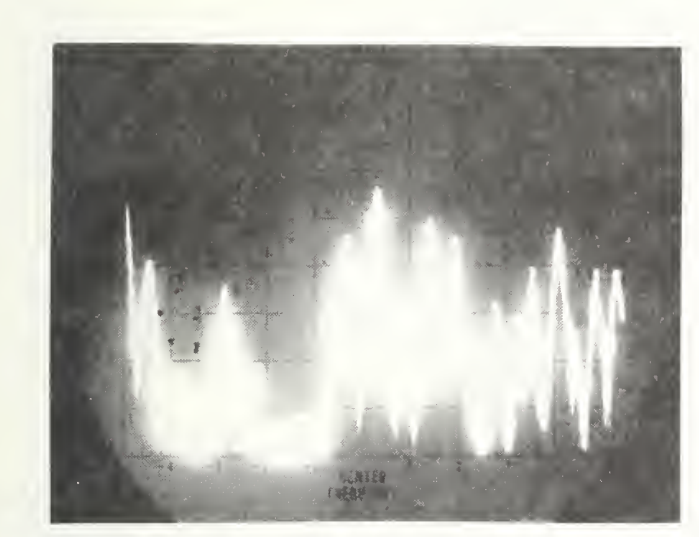
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Bandwidth: 10 KHz



TEST 277
TIME 0908

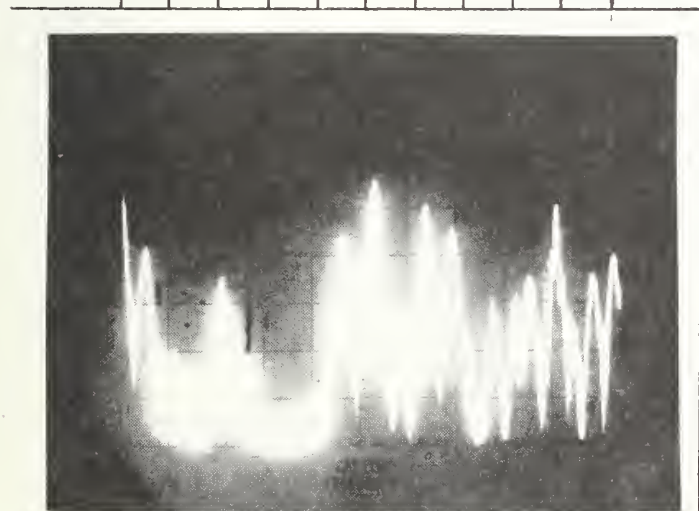
LOCATION: SITE 4 TYPE TEST ESR DATE 7-28-72



0.1 FREQ. 0.6 MHz 1.1

FREQ. SCAN: 0.1 MHz/Div.

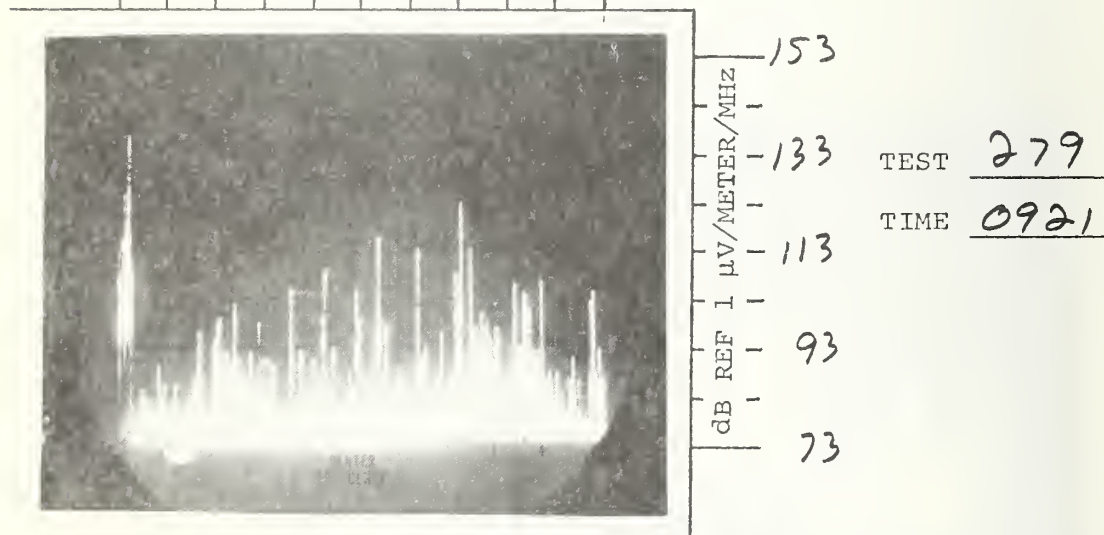
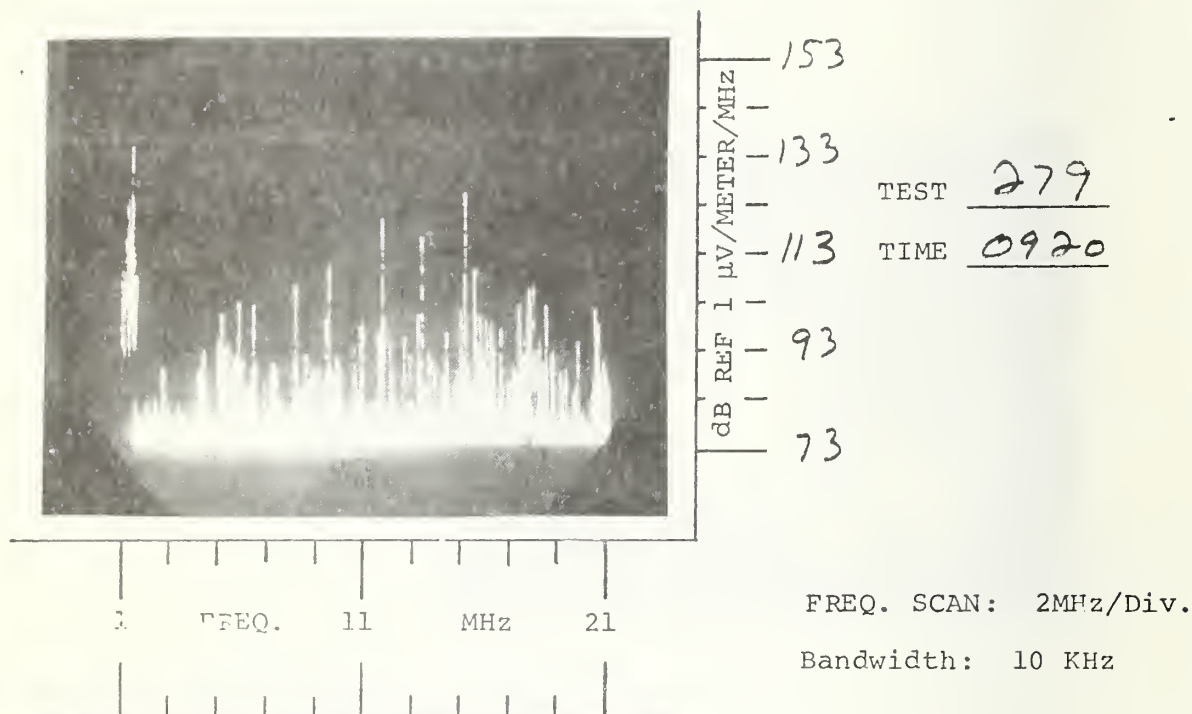
Bandwidth. 10 KHz



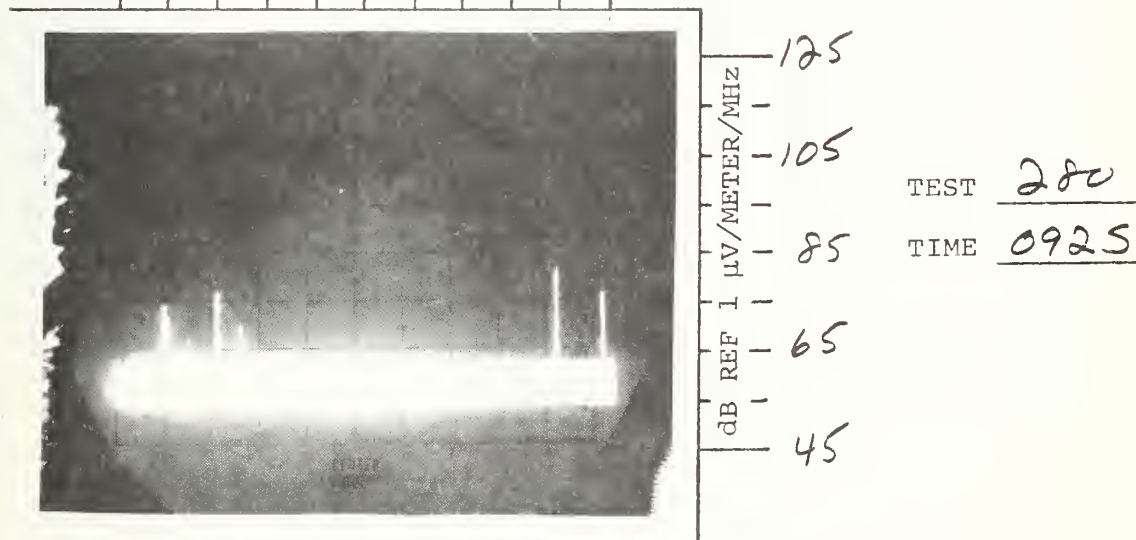
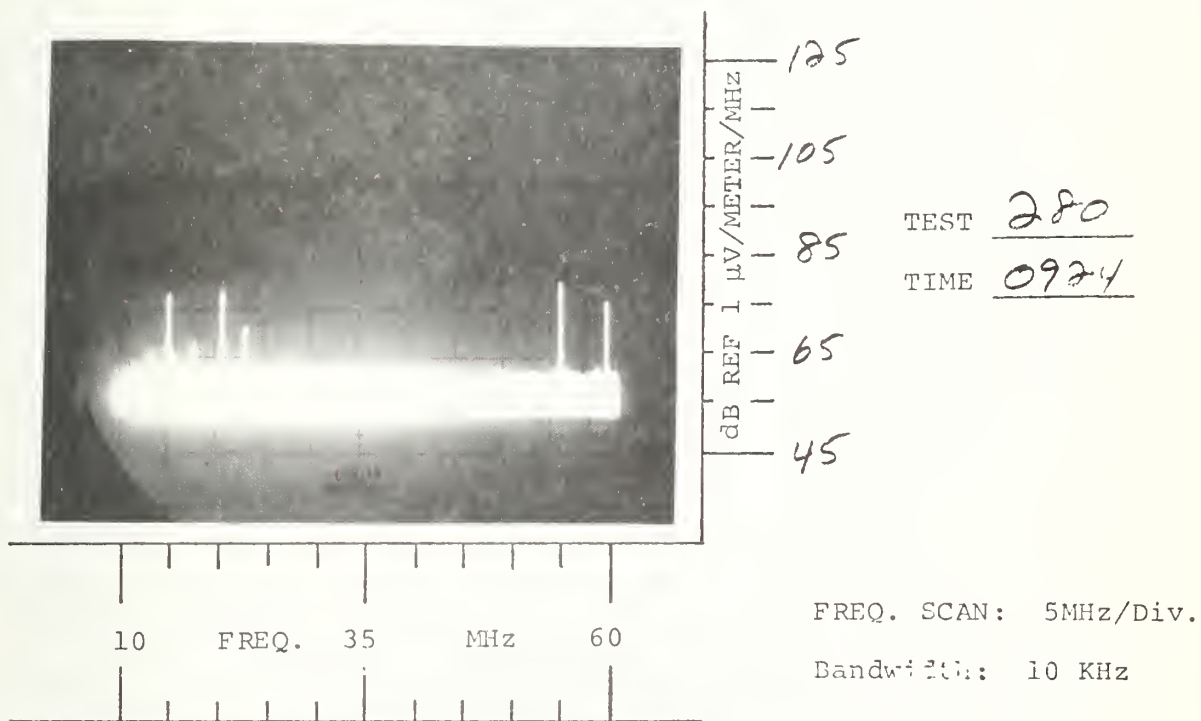
TEST 278
TIME 0917

TEST 278
TIME 0918

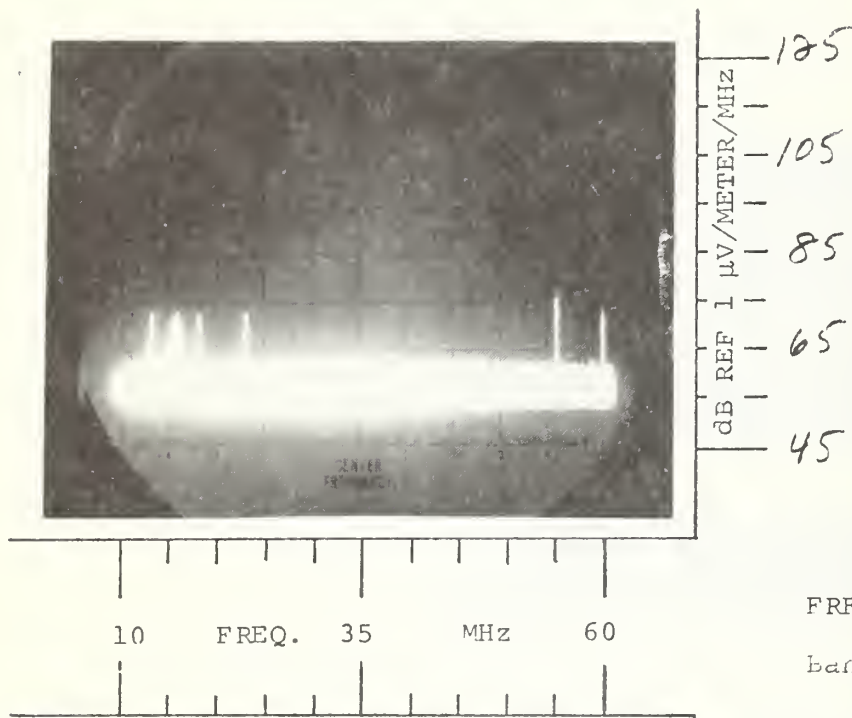
LOCATION: SITE 4 TYPE TEST ESR DATE 7-28-72



LOCATION: SITE 4 TYPE TEST ESR E/W DATE 7-28-72



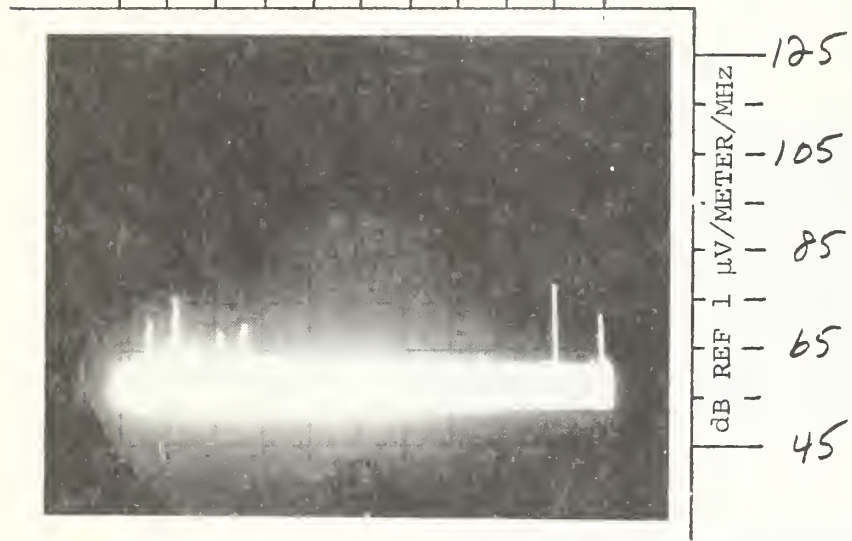
LOCATION: SITE 4 TYPE TEST ESR N/S DATE 7-28-72



TEST 281
TIME 0929

FREQ. SCAN: 5MHz/Div.

bandwidth: 10 KHz



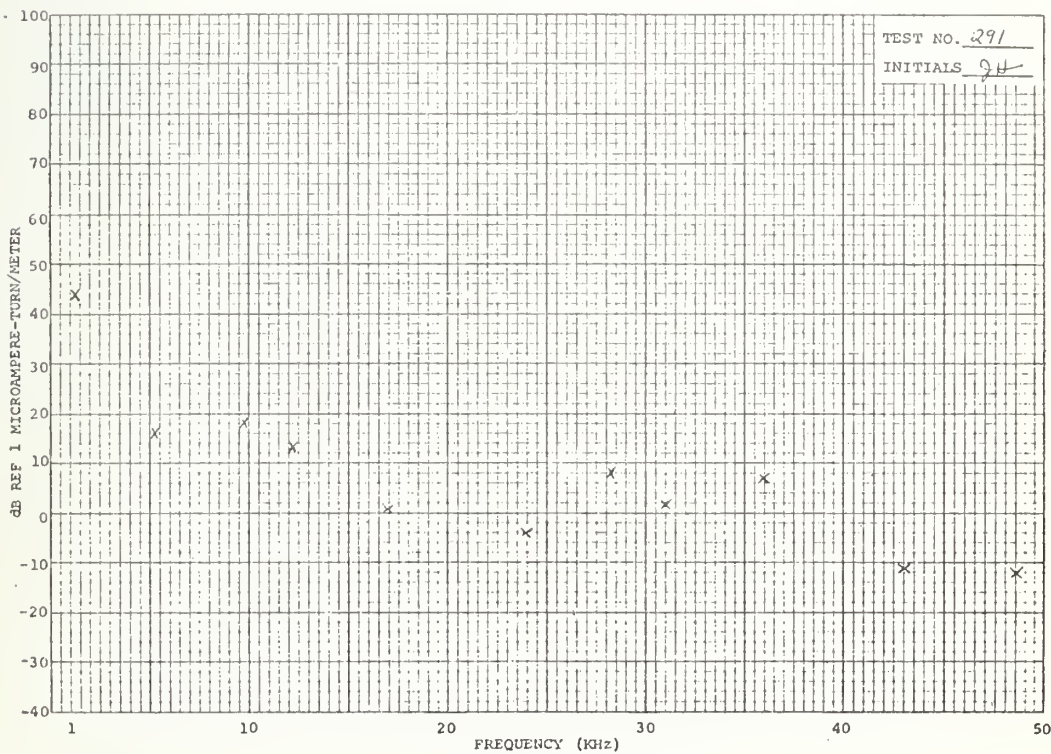
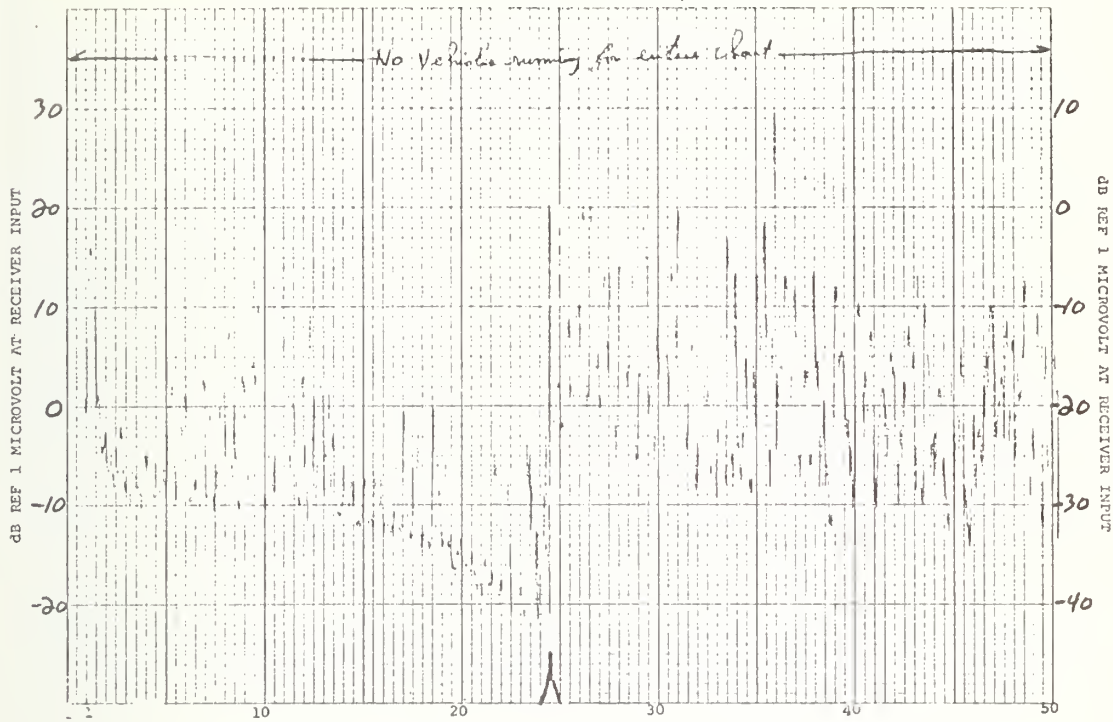
TEST 281
TIME 0930

TEST NO. 291
TEST SPECIMEN 8-4-5

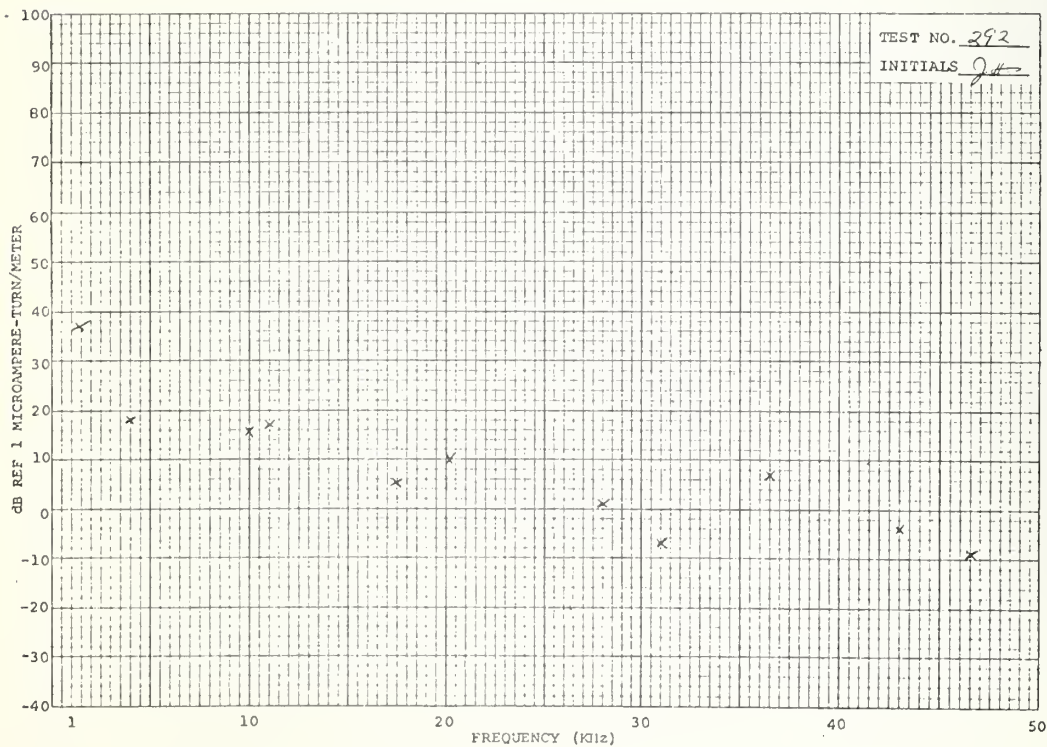
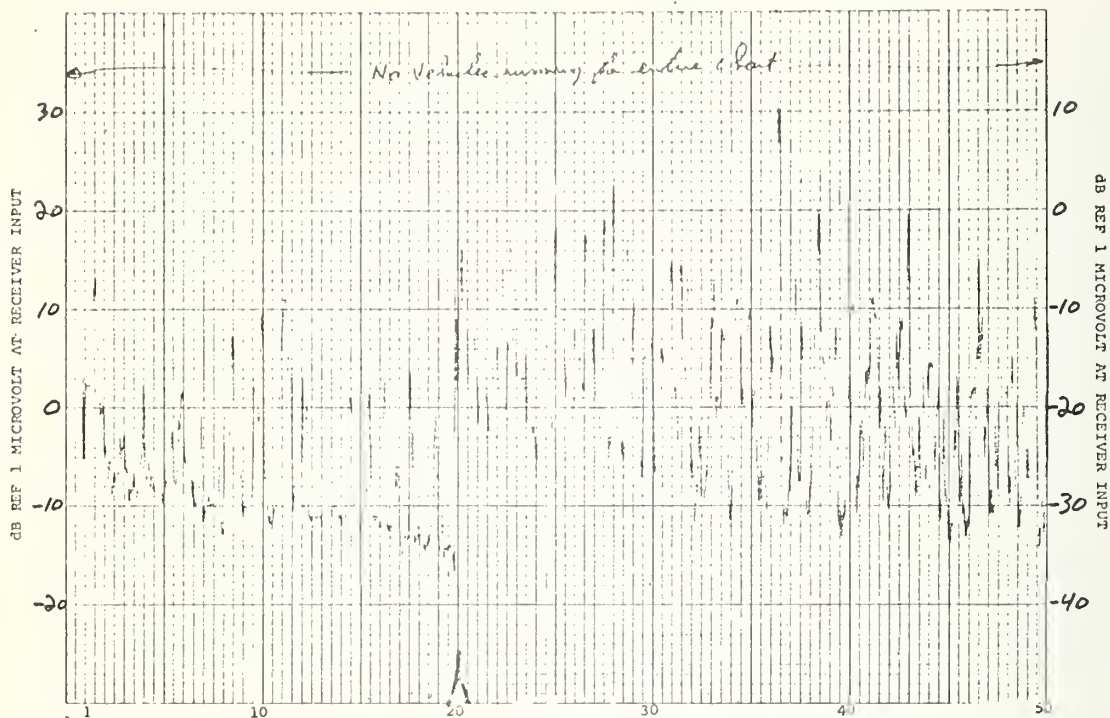
TEST TYPE MSP E/W
TEST EQUIP. EMC 10

BANDWIDTH 50 Hz
DATE 7-28-72

1023
ES



1026
EJ

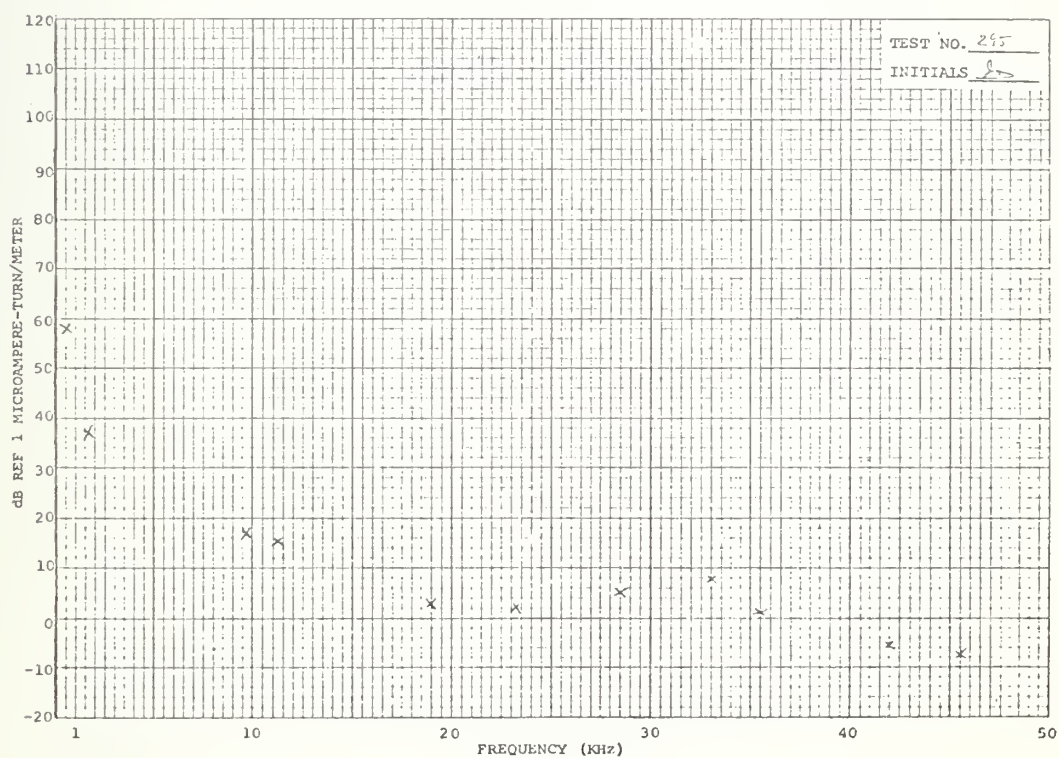
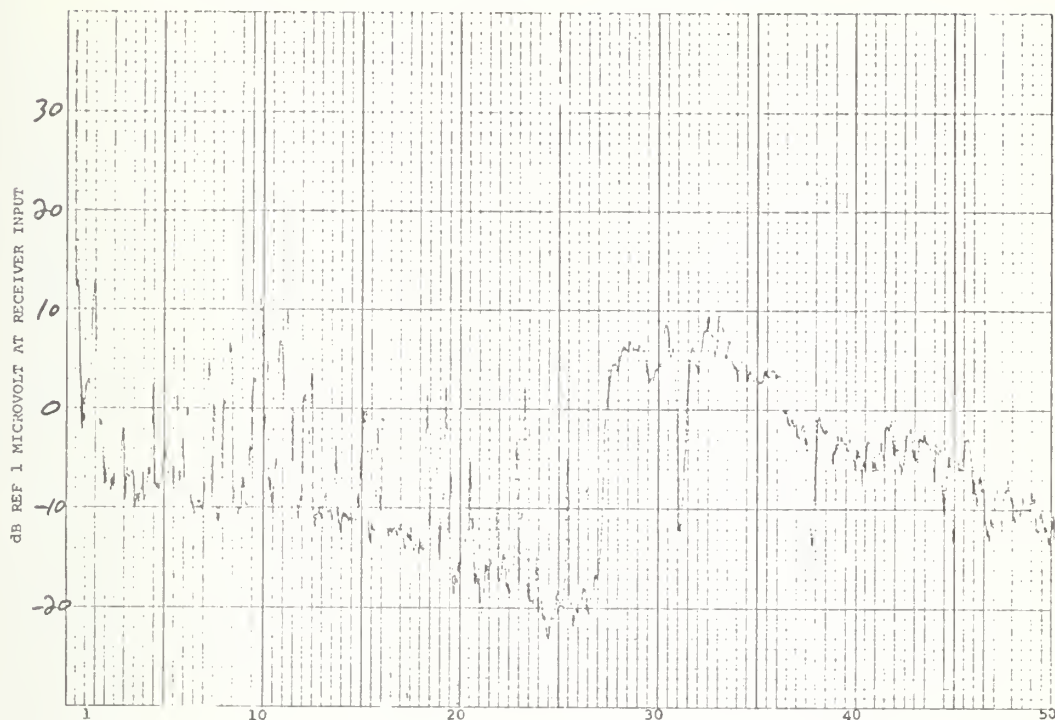


TEST NO. 295
TEST SPECIMEN 265

TEST TYPE MSR E/V
TEST EQUIP. EMC-10

BANDWIDTH 50Hz
DATE 7-28-12

1042
60

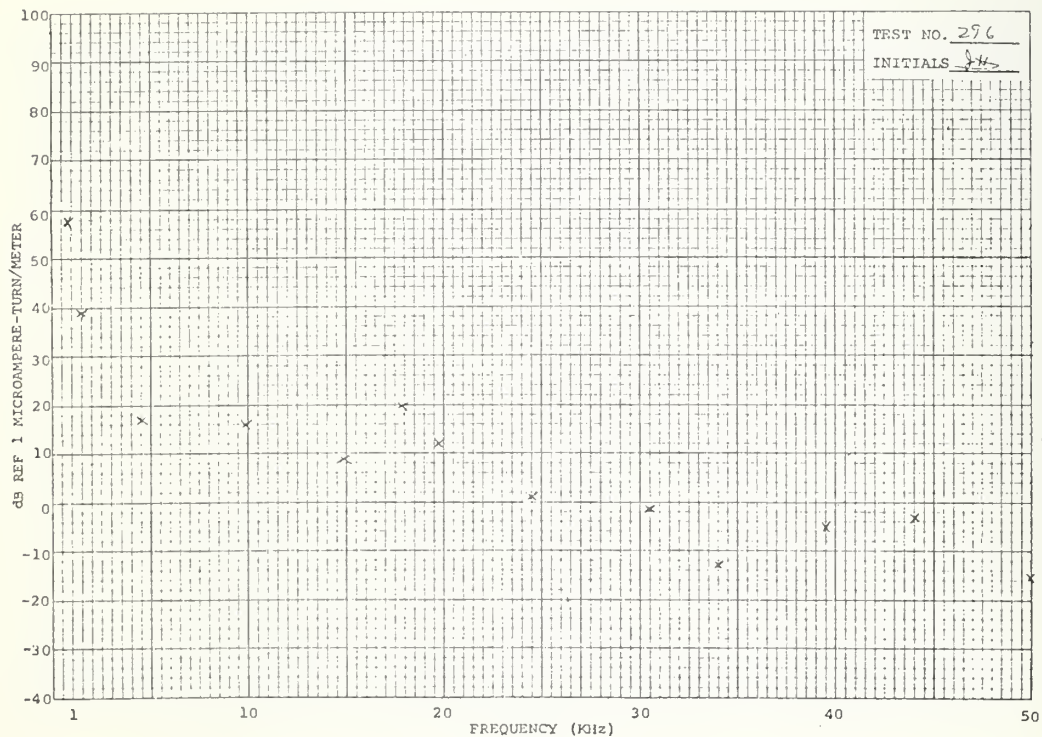
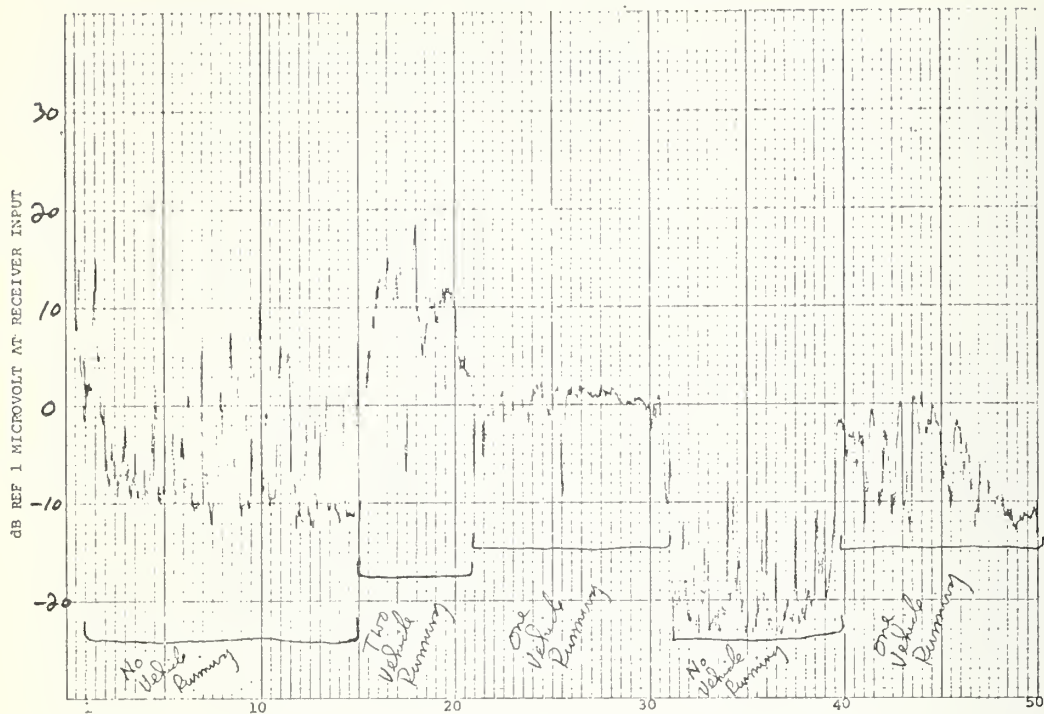


TEST NO. 276
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TEST TYPE MSP F/W
 TEST EQUIP. CMC 10

BANDWIDTH 50 Hz
 DATE 7-28-12

1047
82

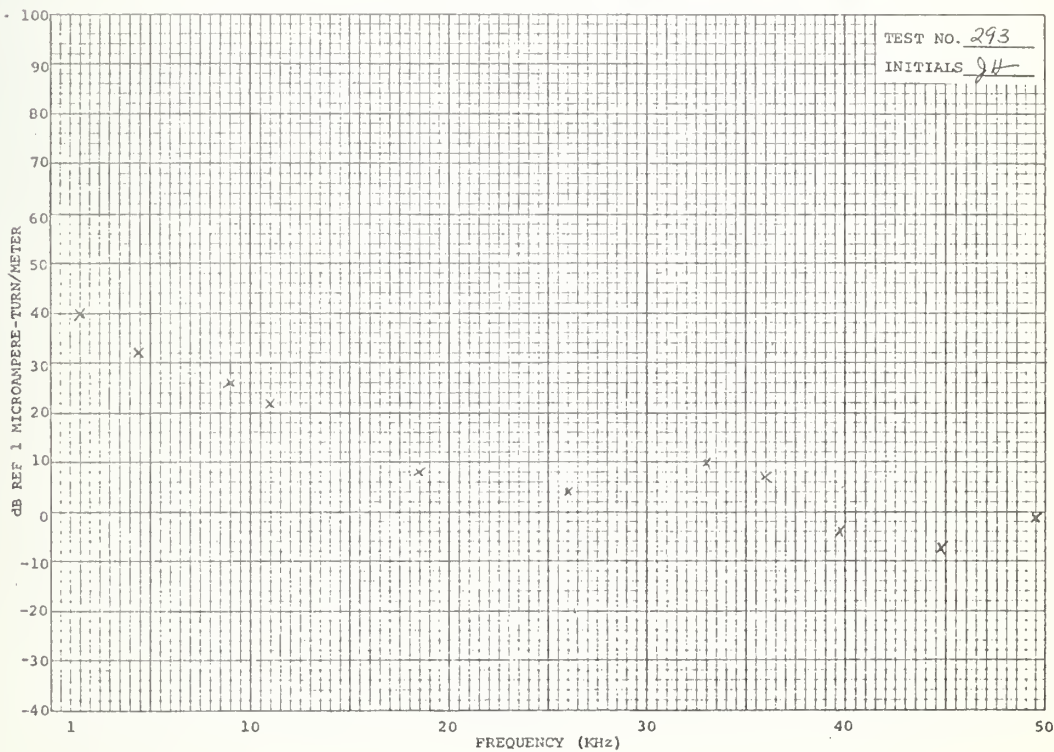
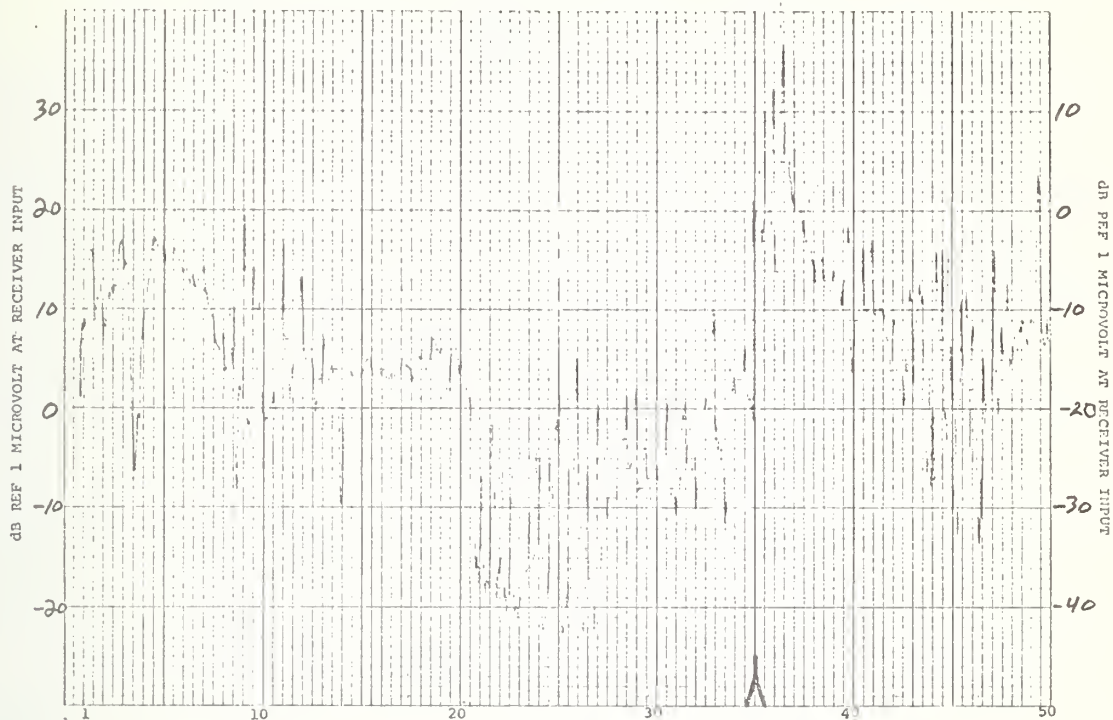


TEST NO. 293
TEST SPECIMEN 57E5

TEST TYPE MSR N-5
TEST EQUIP. ELK-10

BANDWIDTH 50Hz
DATE 7-28-72

1033
JRC

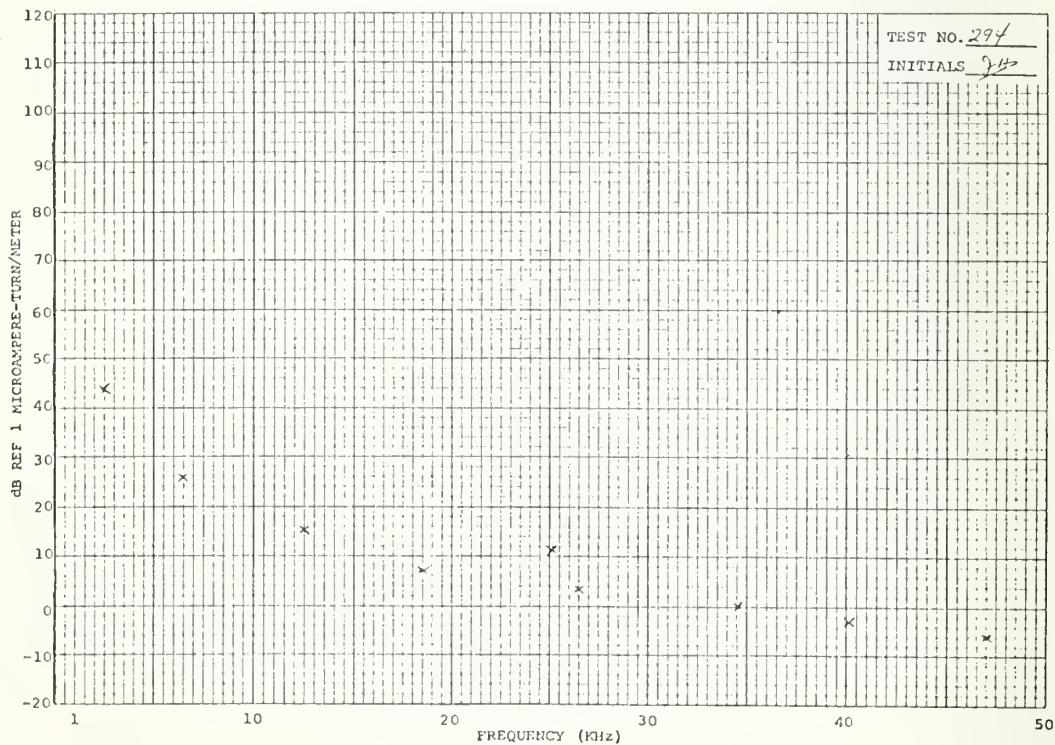
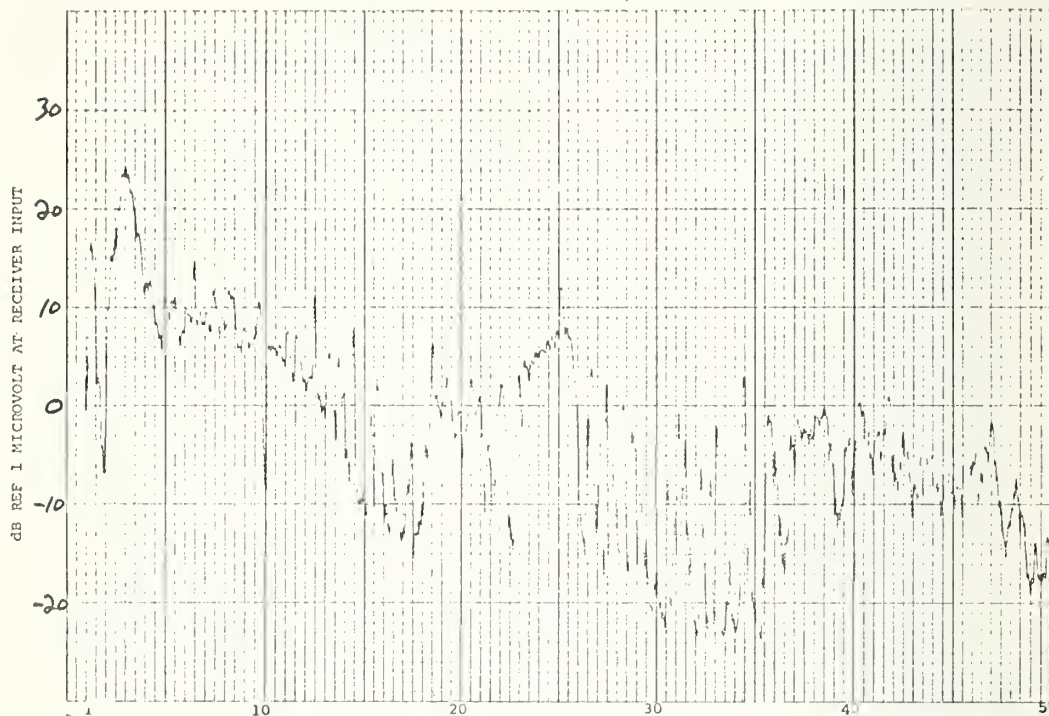


TEST NO. 294
TEST SPECIMEN 5714-5

TEST TYPE PER N-5
TEST EQUIP. EX-10

BANDWIDTH 5042
DATE 7-27-72

1037
JRC

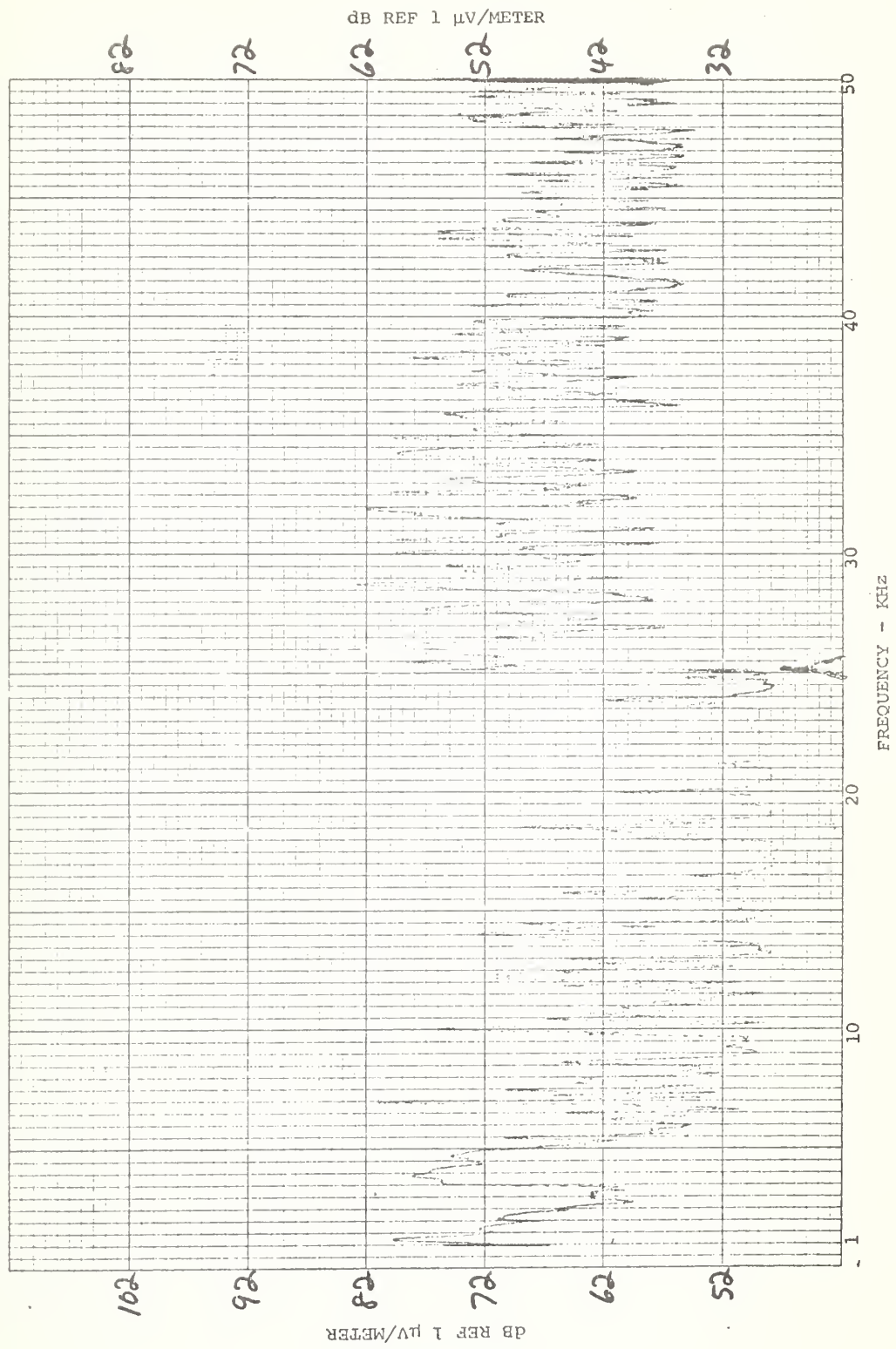


1000
ES

BANDWIDTH 50 Hz
DATE 7-28-72

TEST TYPE ESR E/W
TEST EQUIP. EMC-10

TEST NO. 287
TEST SPECIMEN 2-1-5

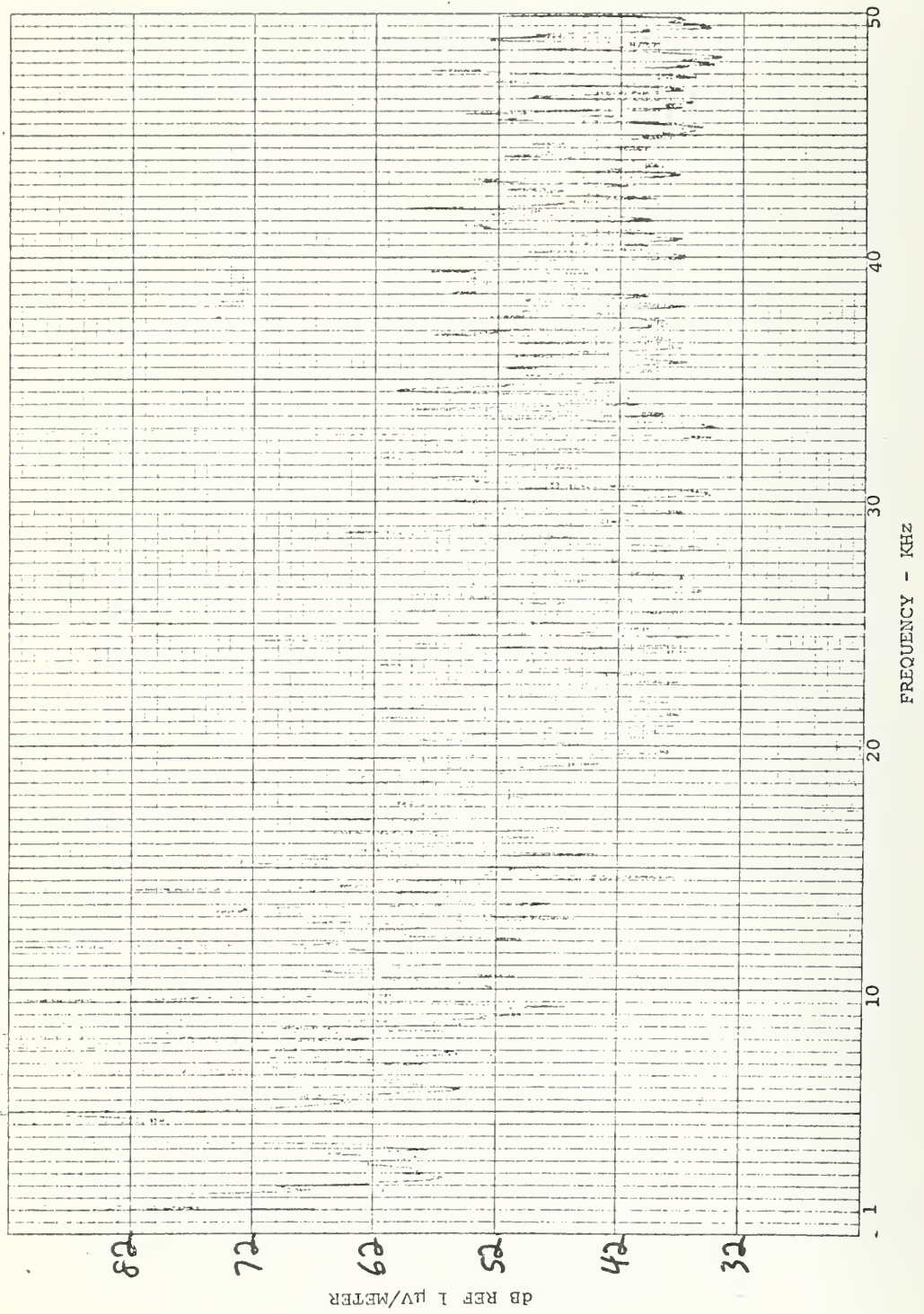


1004
JRC

BANDWIDTH 50 Hz
DATE 7-28-72

TEST TYPE E-R E-W
TEST EQUIP. EMC-10

TEST NO. 288
TEST SPECIMEN 51E5



1008
URC

BANDWIDTH 50Hz
DATE 7-28-78

TEST TYPE ESR N-S
TEST EQUIP. EMC-10

TEST NO. 289
TEST SPECIMEN SIF-5

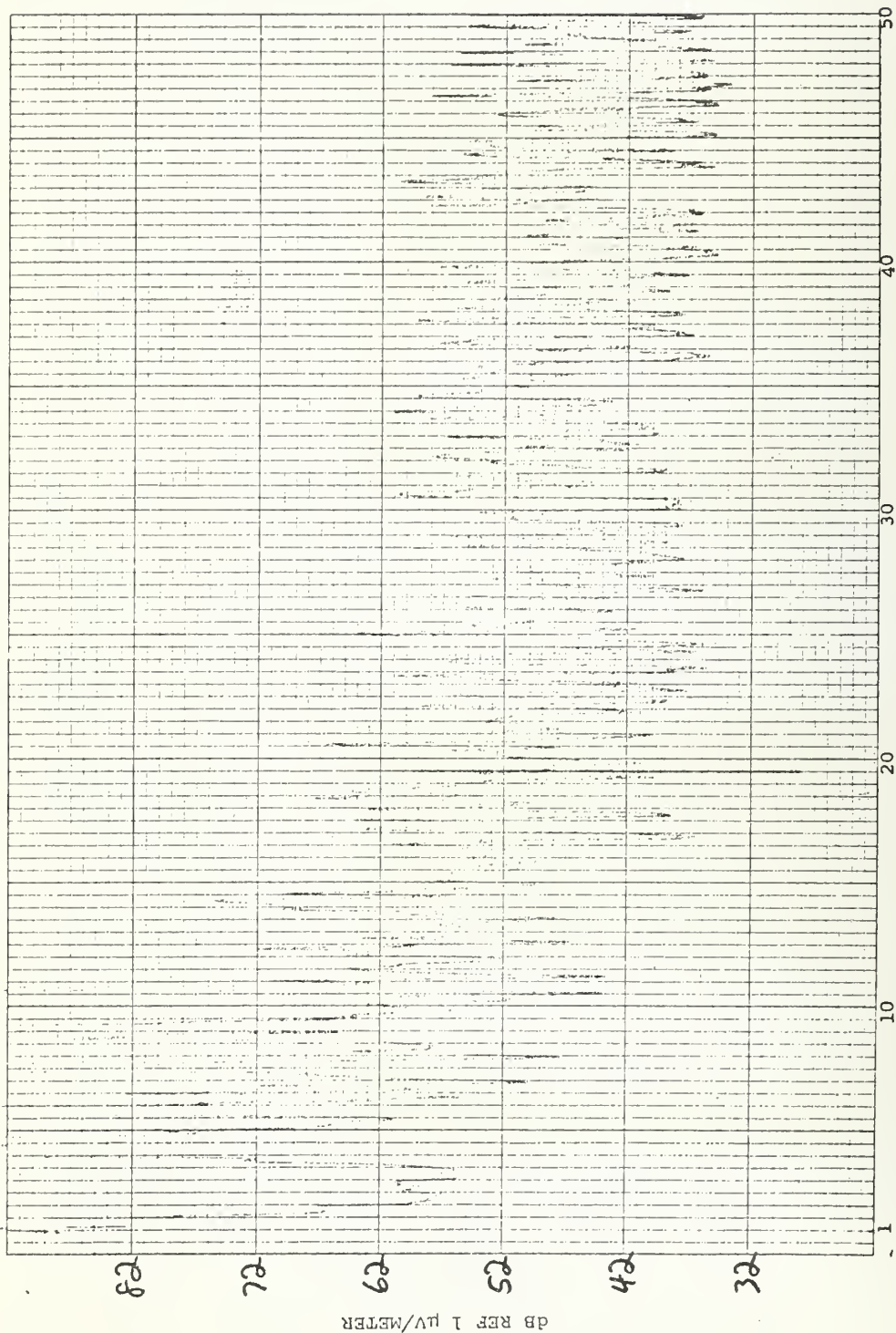


1014
JRC

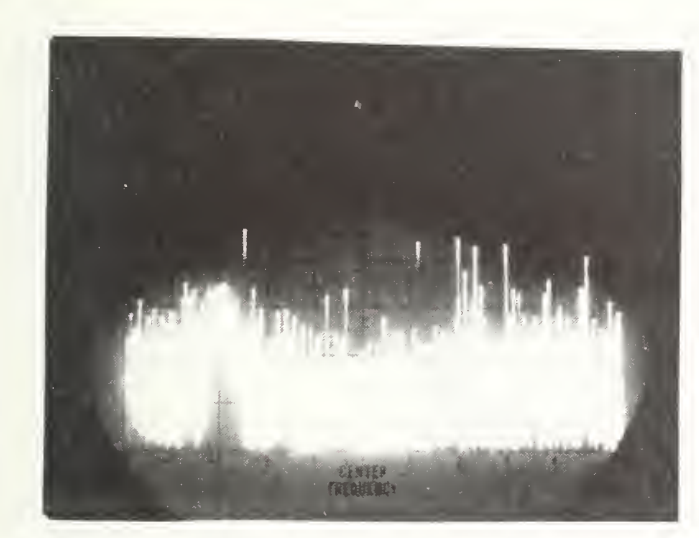
BANDWIDTH 50 Hz
DATE 7-27-72

TEST TYPE F5R N-5
TEST EQUIP. EMC-10

TEST NO. 290
TEST SPECIMEN SITE 5



LOCATION: SITE 5 TYPE TEST ESR DATE 7-28-72



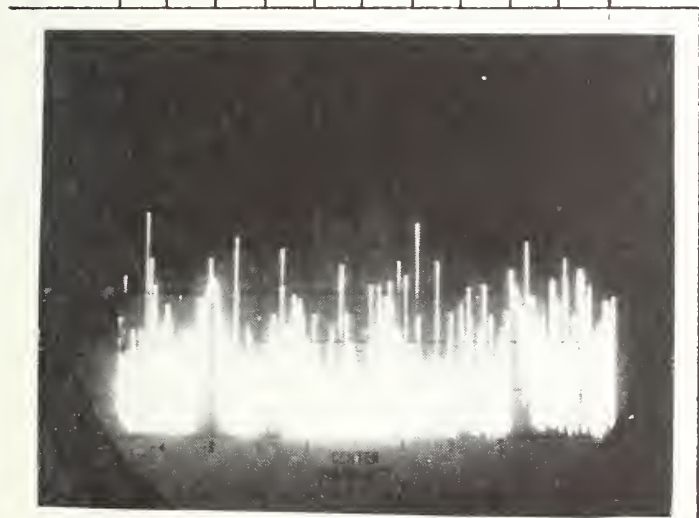
153
133
113
93
73
dB REF 1 μ V/METER/MHZ

TEST 286
TIME 0955

50 FREQ. 75 KHz 100

FREQ. SCAN: 5 KHz/Div.

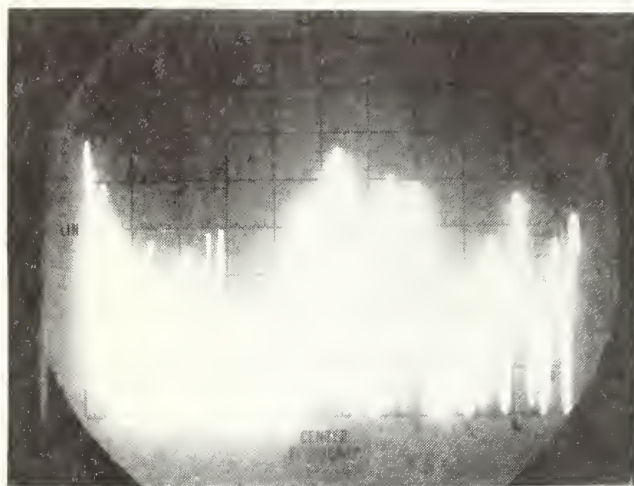
Bandwidth: 10 KHz



153
133
113
93
73
dB REF 1 μ V/METER/MHZ

TEST 286
TIME 0956

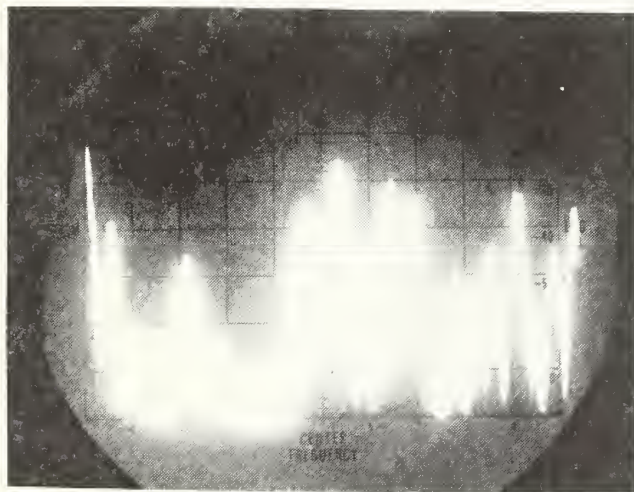
LOCATION: SITE 5 TYPE TEST ESR DATE 7-28-72



0.1 FREQ. 0.6 MHz 1.1

FREQ. SCAN: 0.1 MHz/Div.

Bandwidth: 10 KHz



153
133
113
93
73

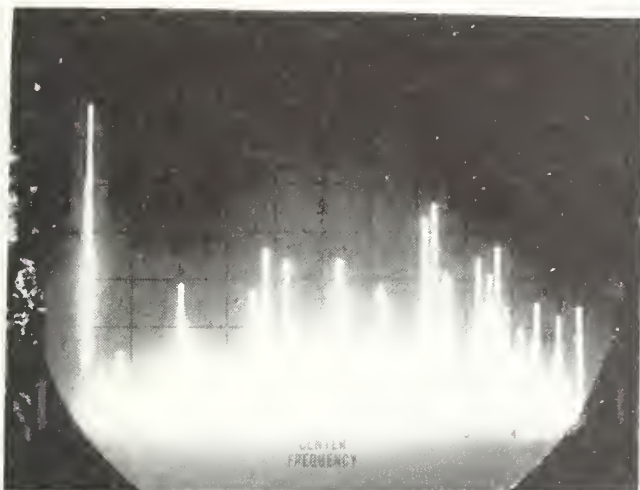
TEST 285

TIME 0950

TEST 285

TIME 0953

LOCATION: SITE 5 TYPE TEST ESR DATE 7-28-72



TEST 284
TIME 0948

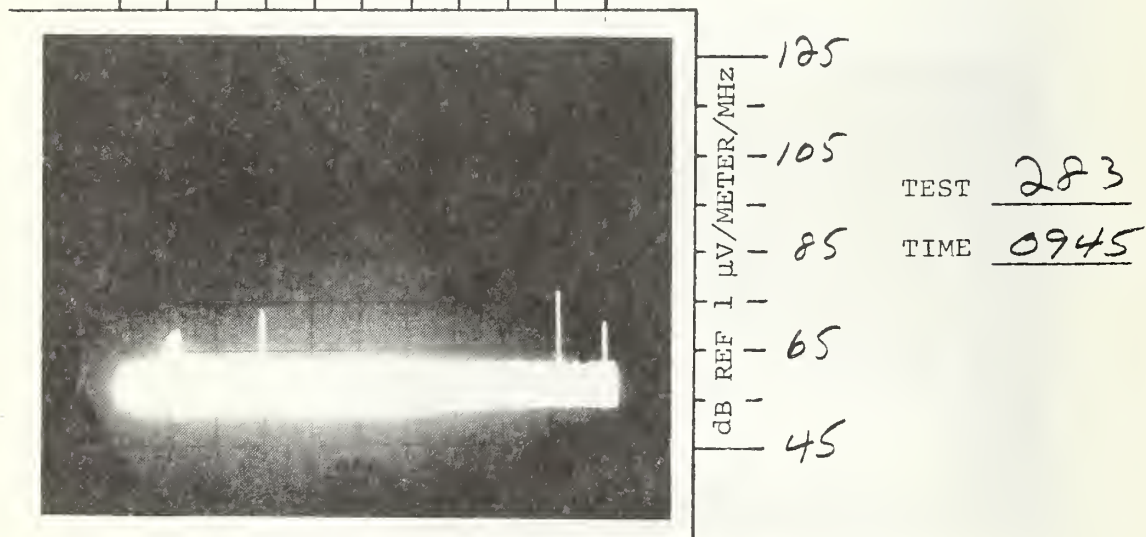
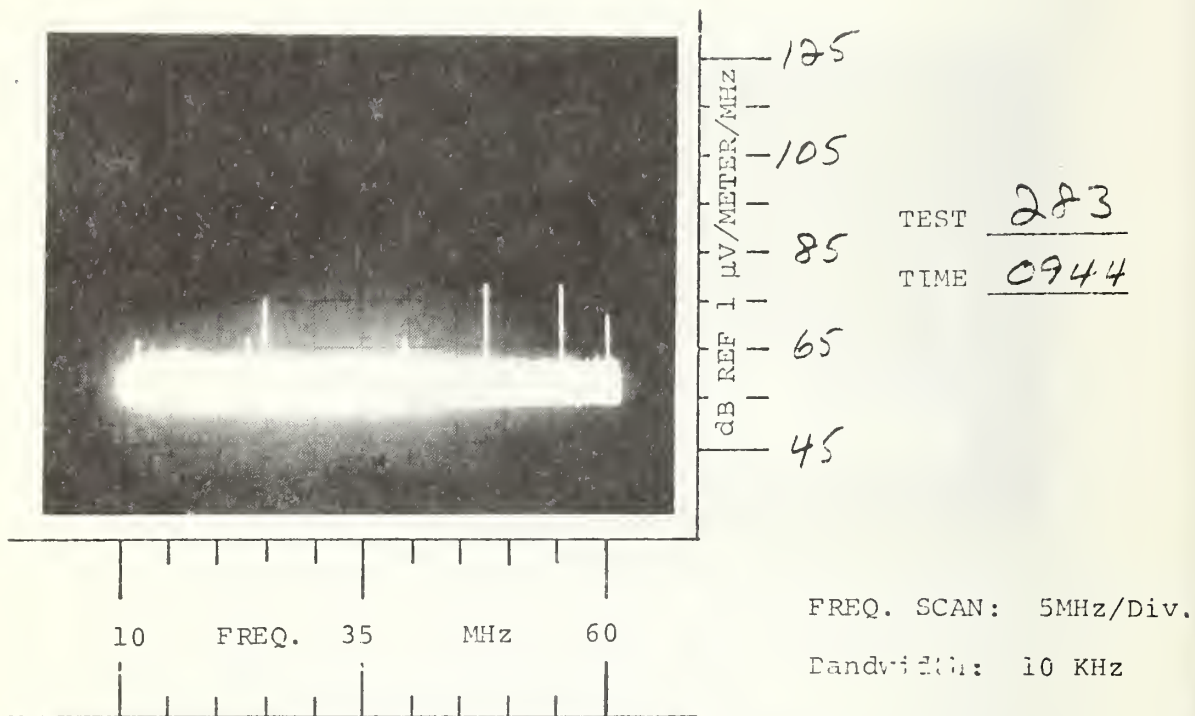
FREQ. SCAN: 2MHz/Div.

Bandwidth: 10 KHz

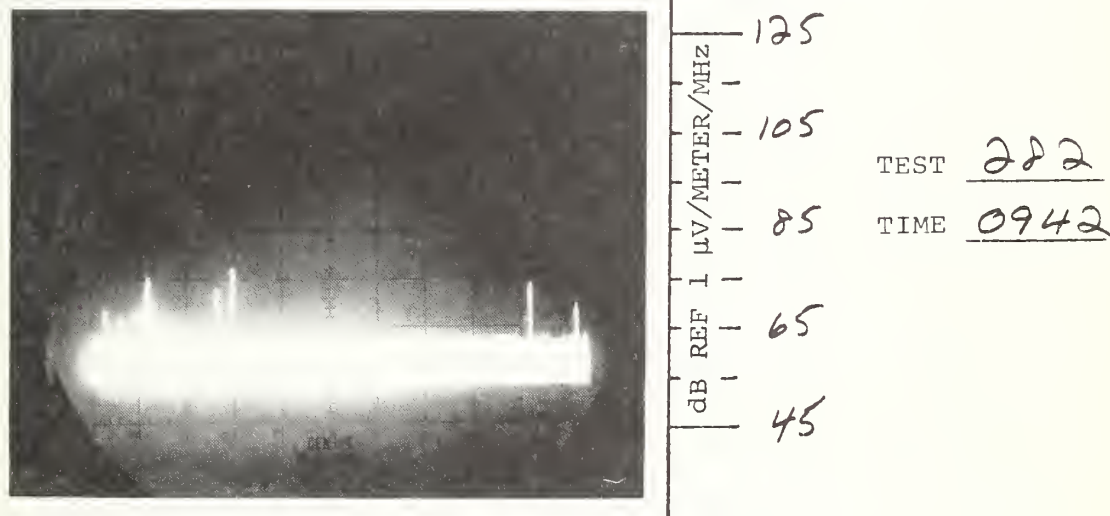
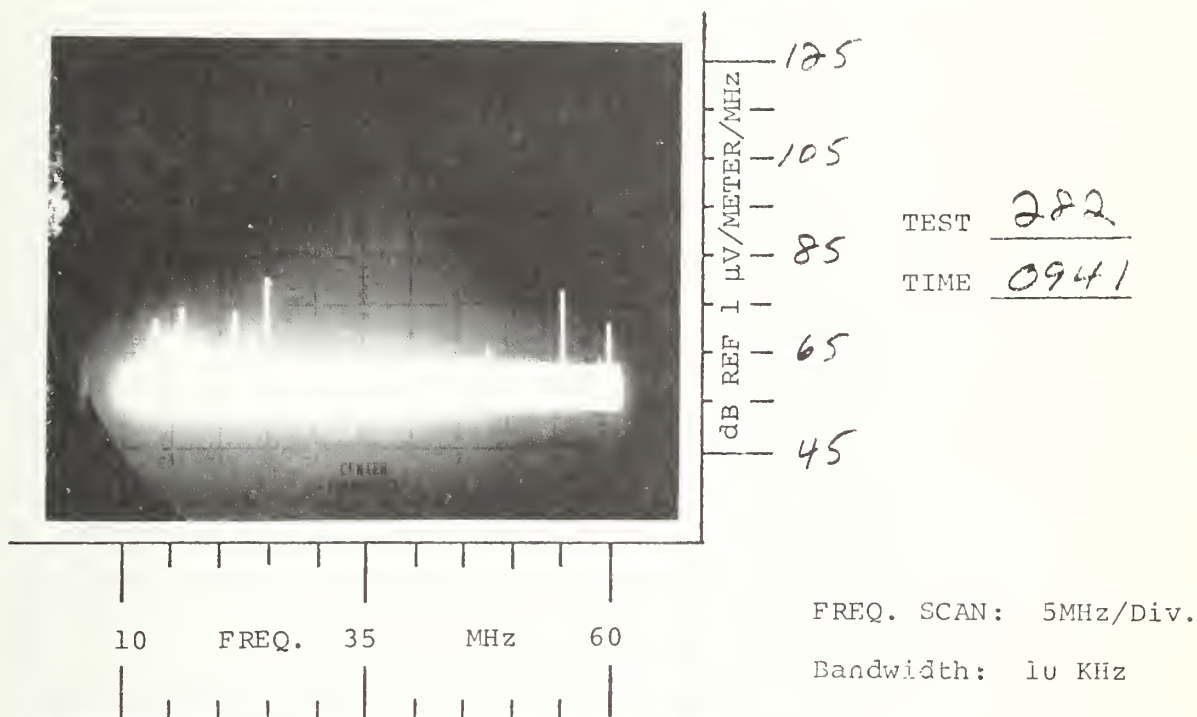


TEST 284
TIME 0949

LOCATION: SITE 5 TYPE TEST ESR E/W DATE 7-22-72



LOCATION: SITE 5 TYPE TEST ESR N/s DATE 7-28-72

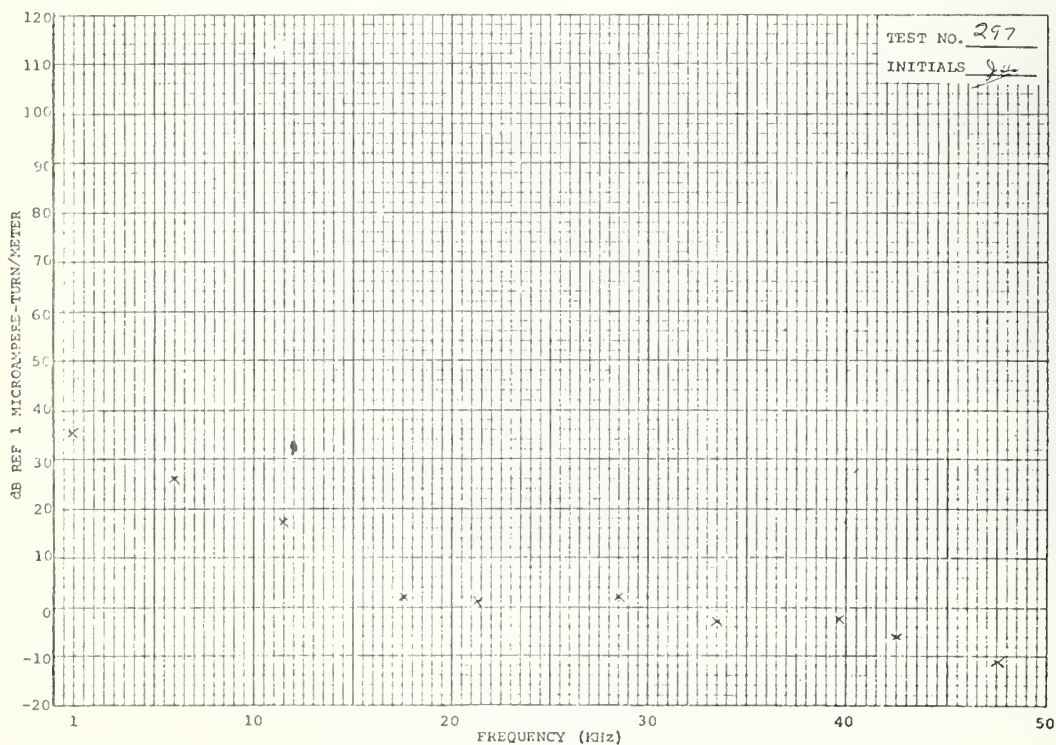
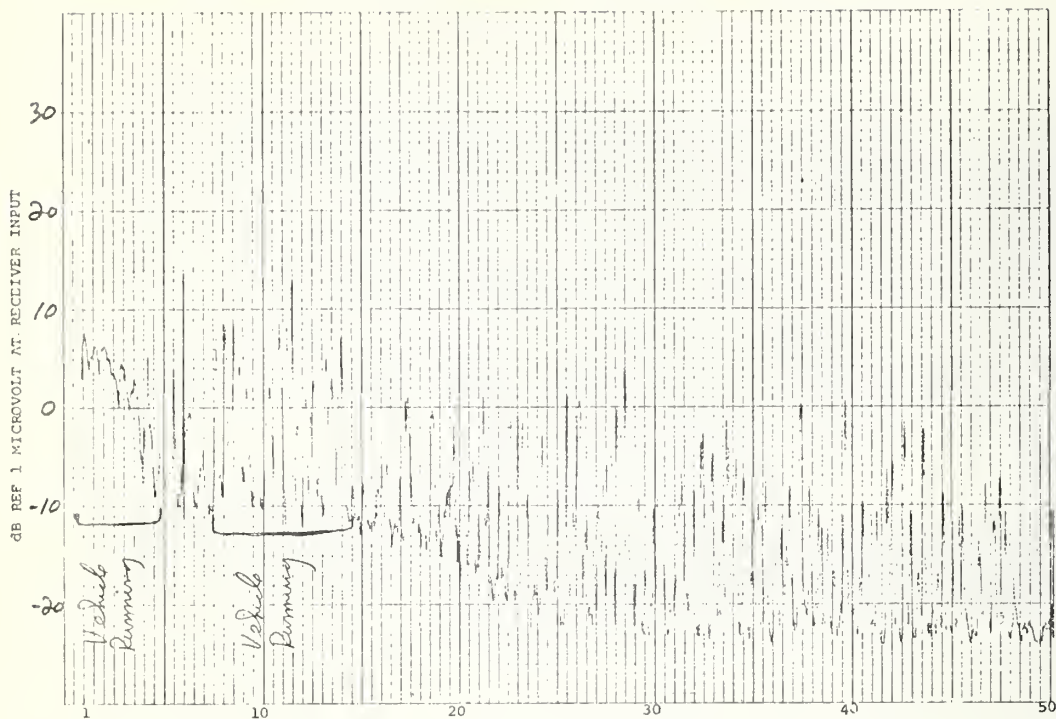


TEST NO. 297
TEST SPECIMEN 8.6 II

TEST TYPE MSP F/W
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-28-72

111
JRC

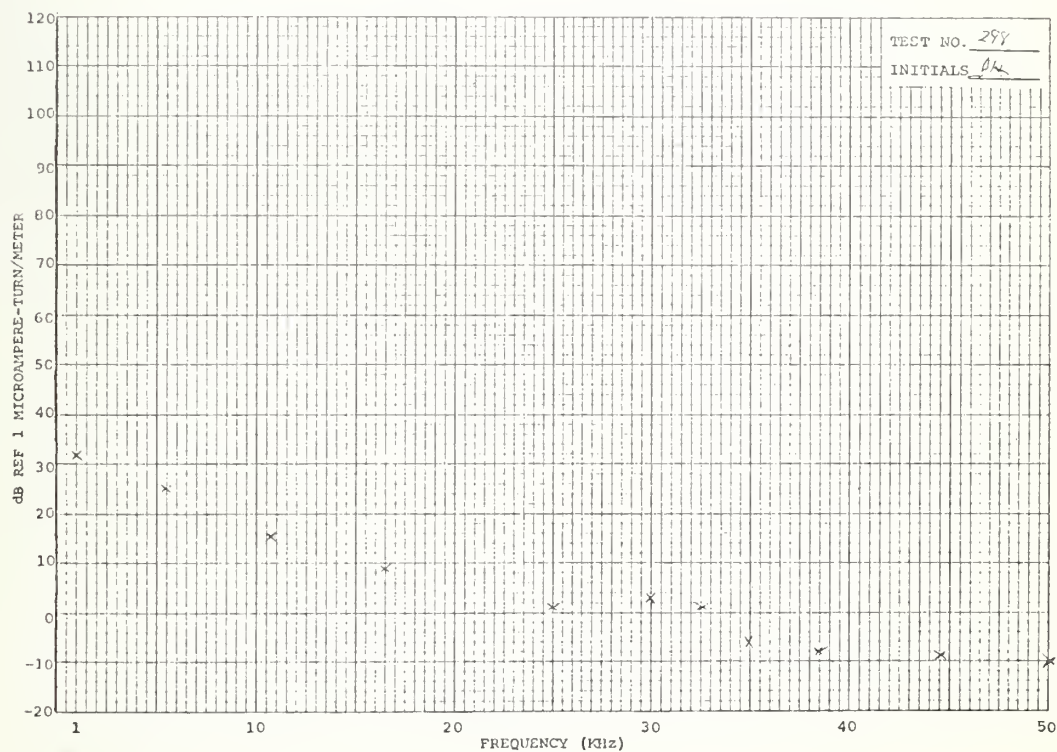
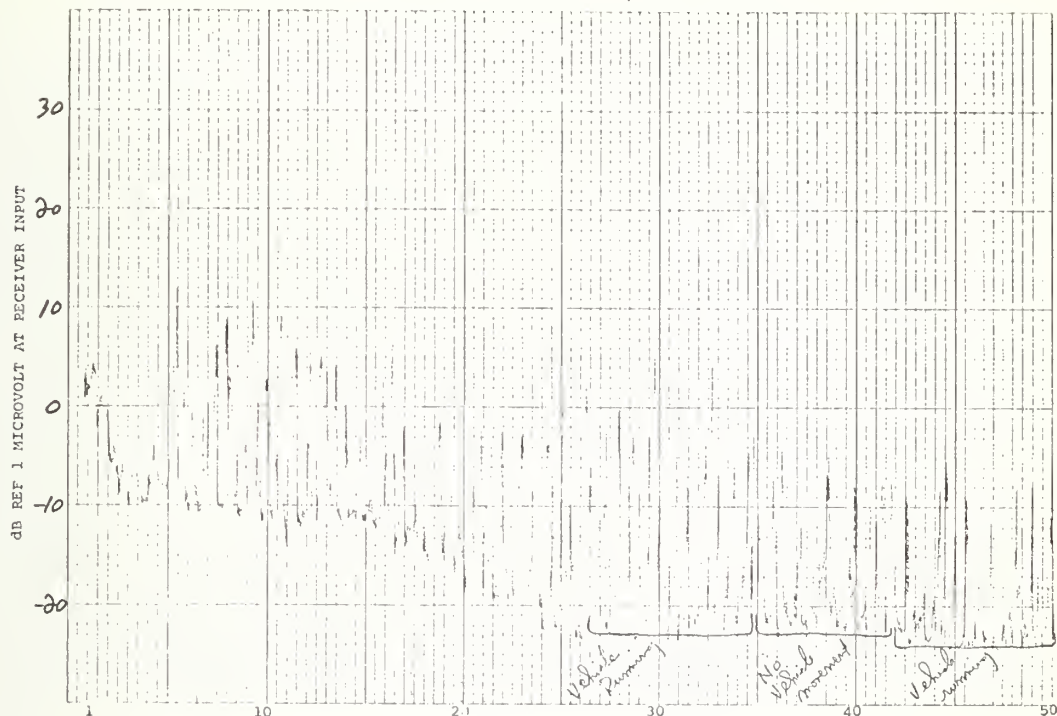


TEST NO. 298
TEST SPECIMEN 2611

TEST TYPE MSA' F/L
TEST EQUIP. ENC-1C

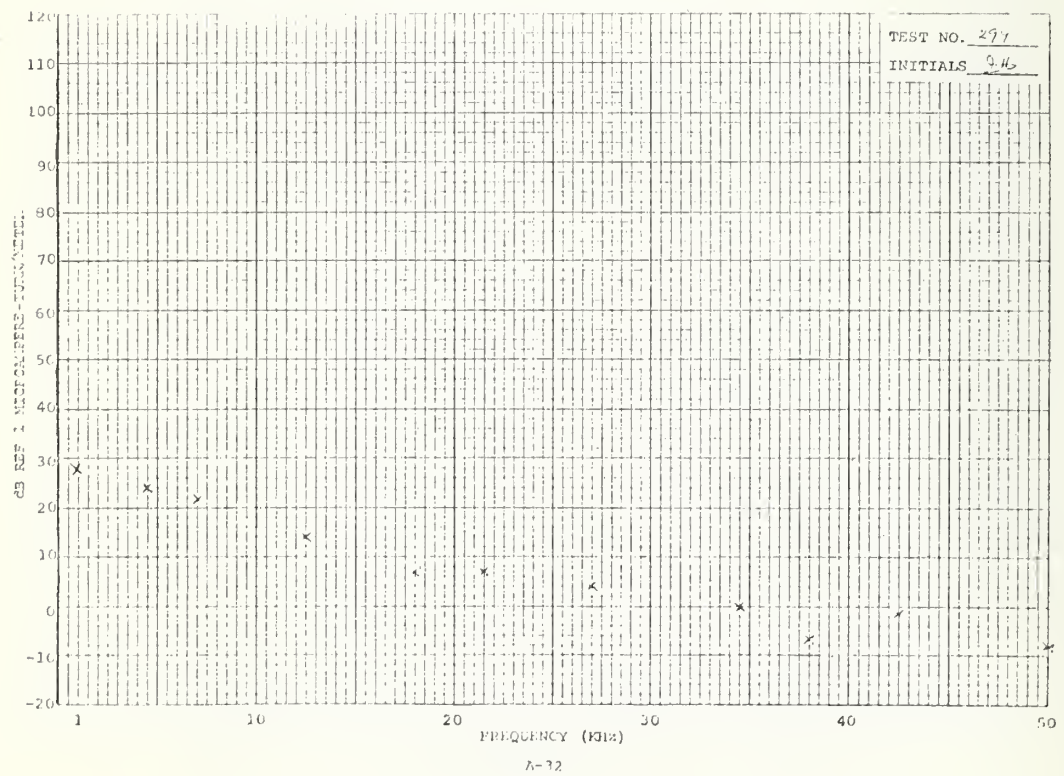
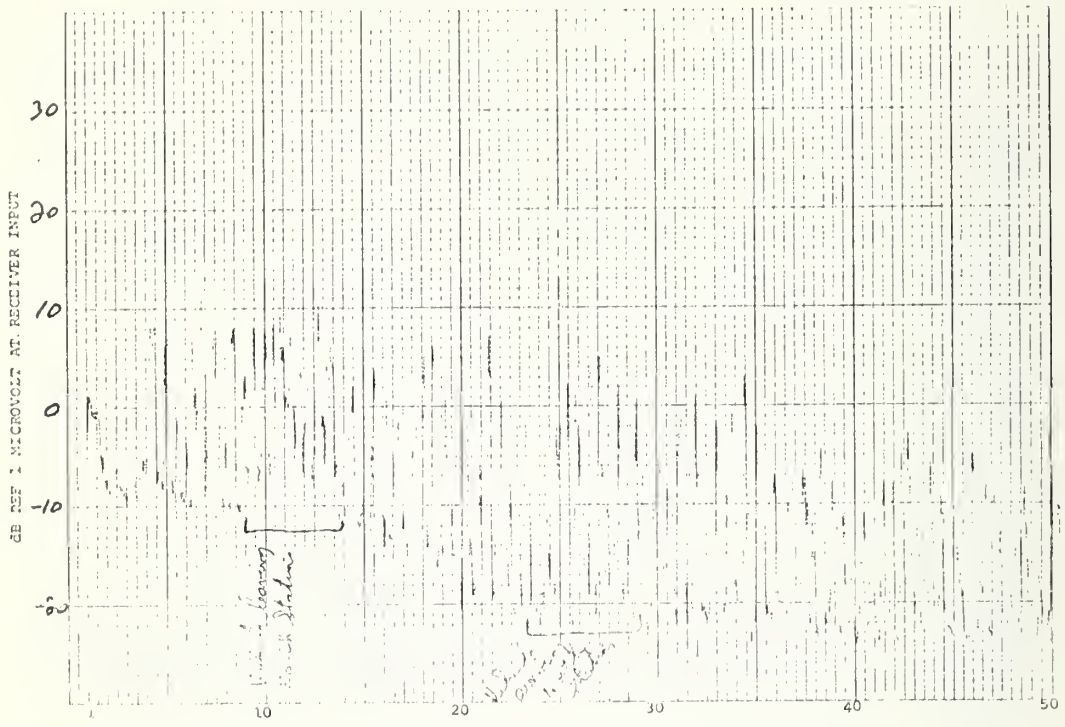
BANDWIDTH 50Hz
DATE 7-28-72

1110
ES



TEST NO. 297 TEST TYPE MSP N/S BANDWIDTH 50 Hz
 TEST SPECIMEN 2-6-11 TEST EQUIP. 100-10 DATE 7-28-72

115
87

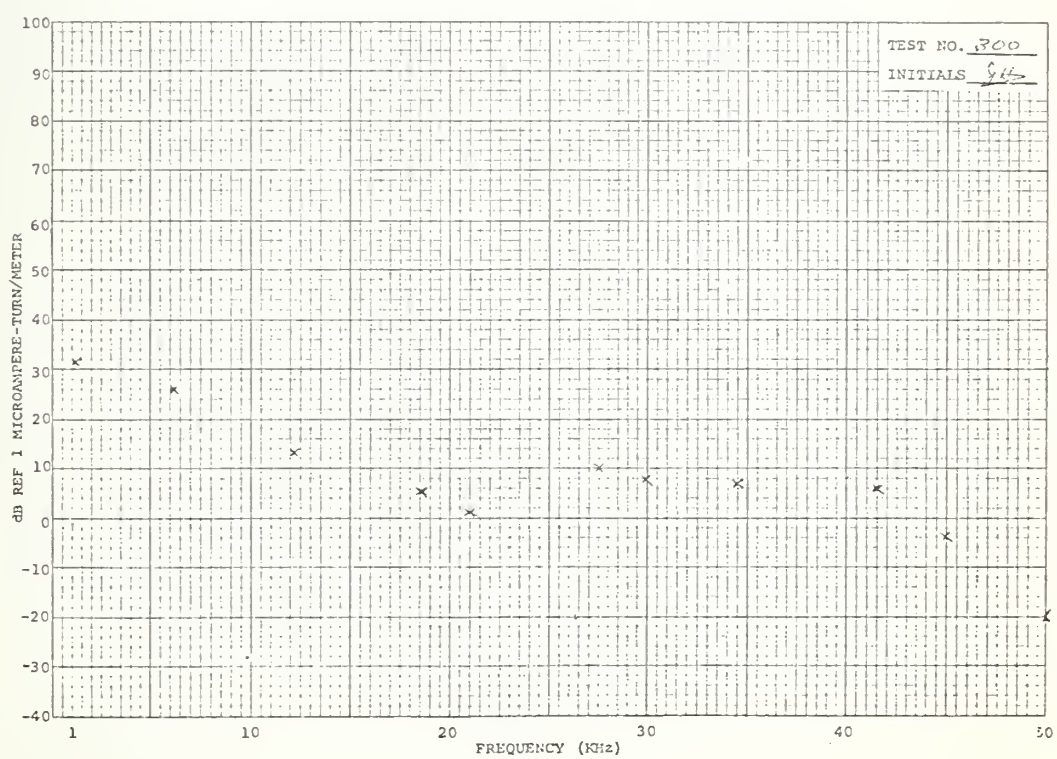
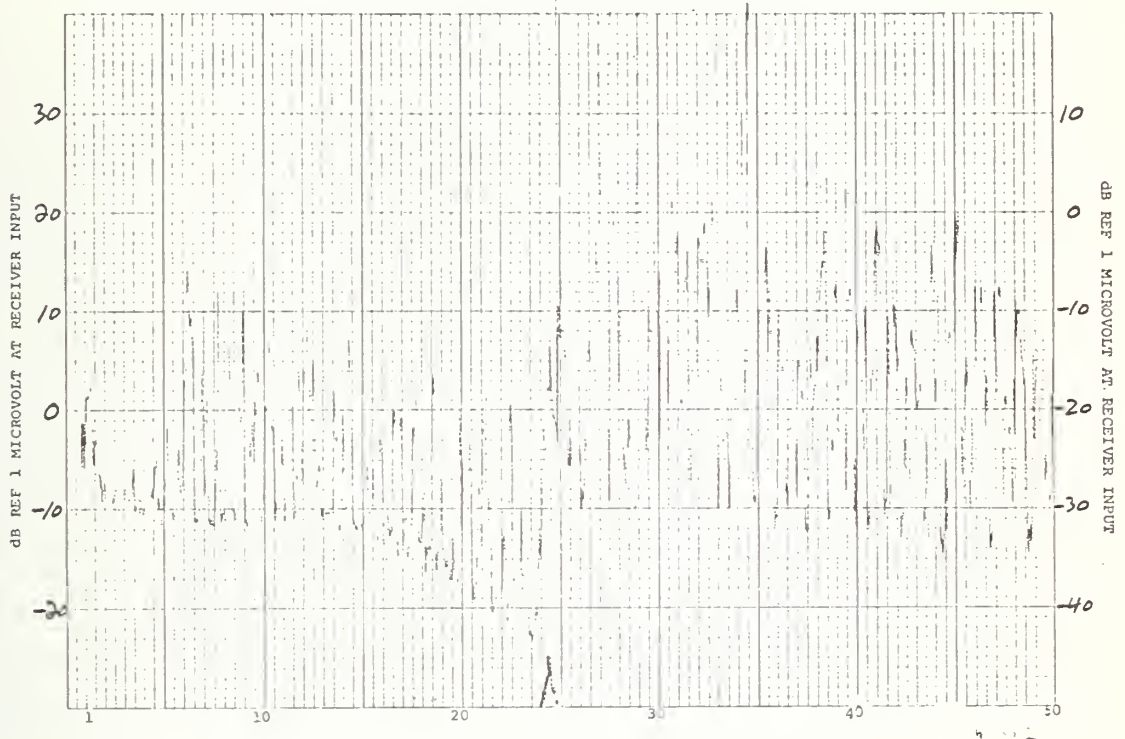


TEST NO. 300
TEST SPECIMEN 8-6-11

TEST TYPE MSP N/S
TEST EQUIP. ENC-10

BANDWIDTH 50Hz
DATE 7-28-72

1127
87



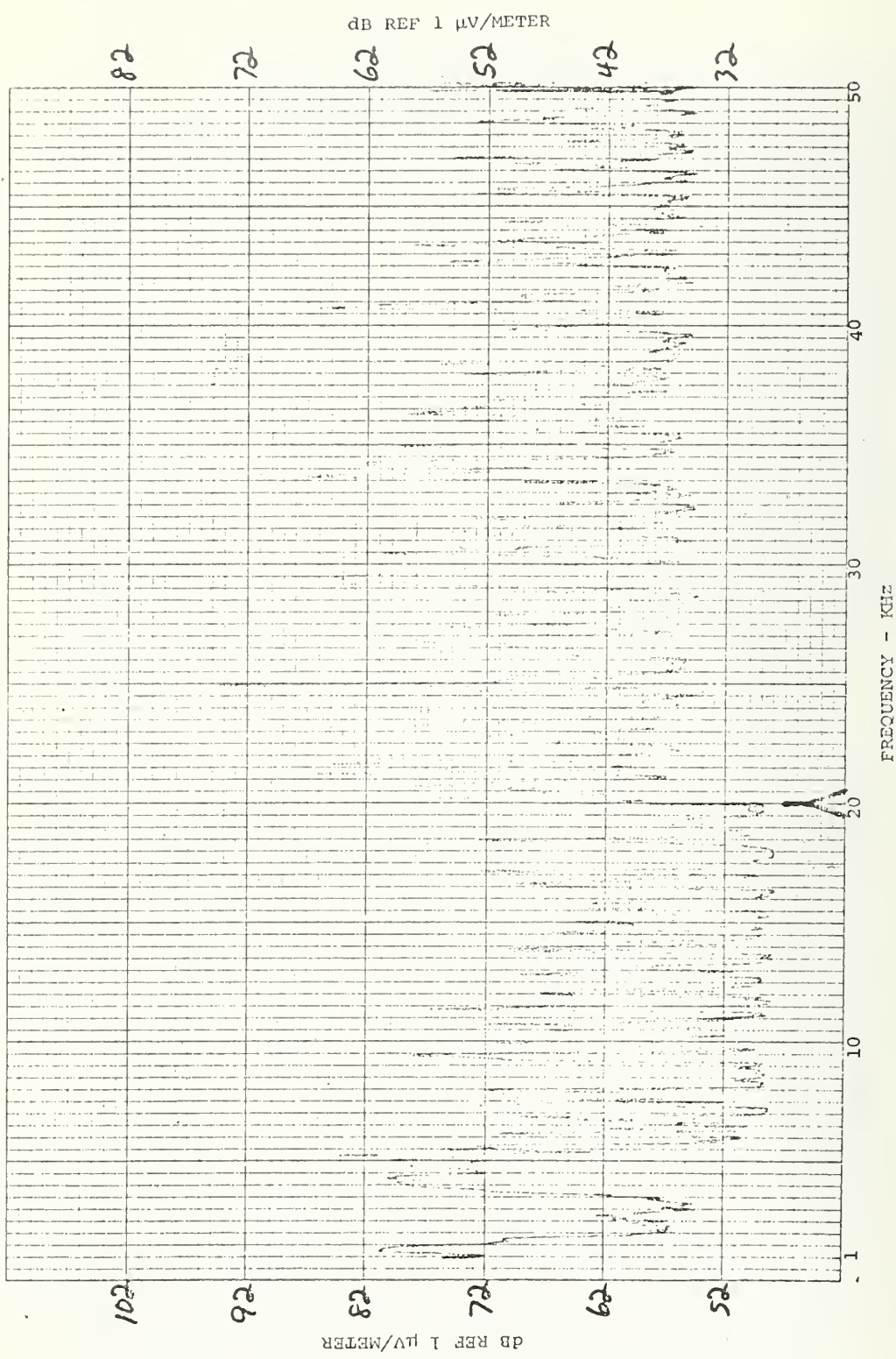
TEST NO. 300
INITIALS 8-6-11

1126
EJ

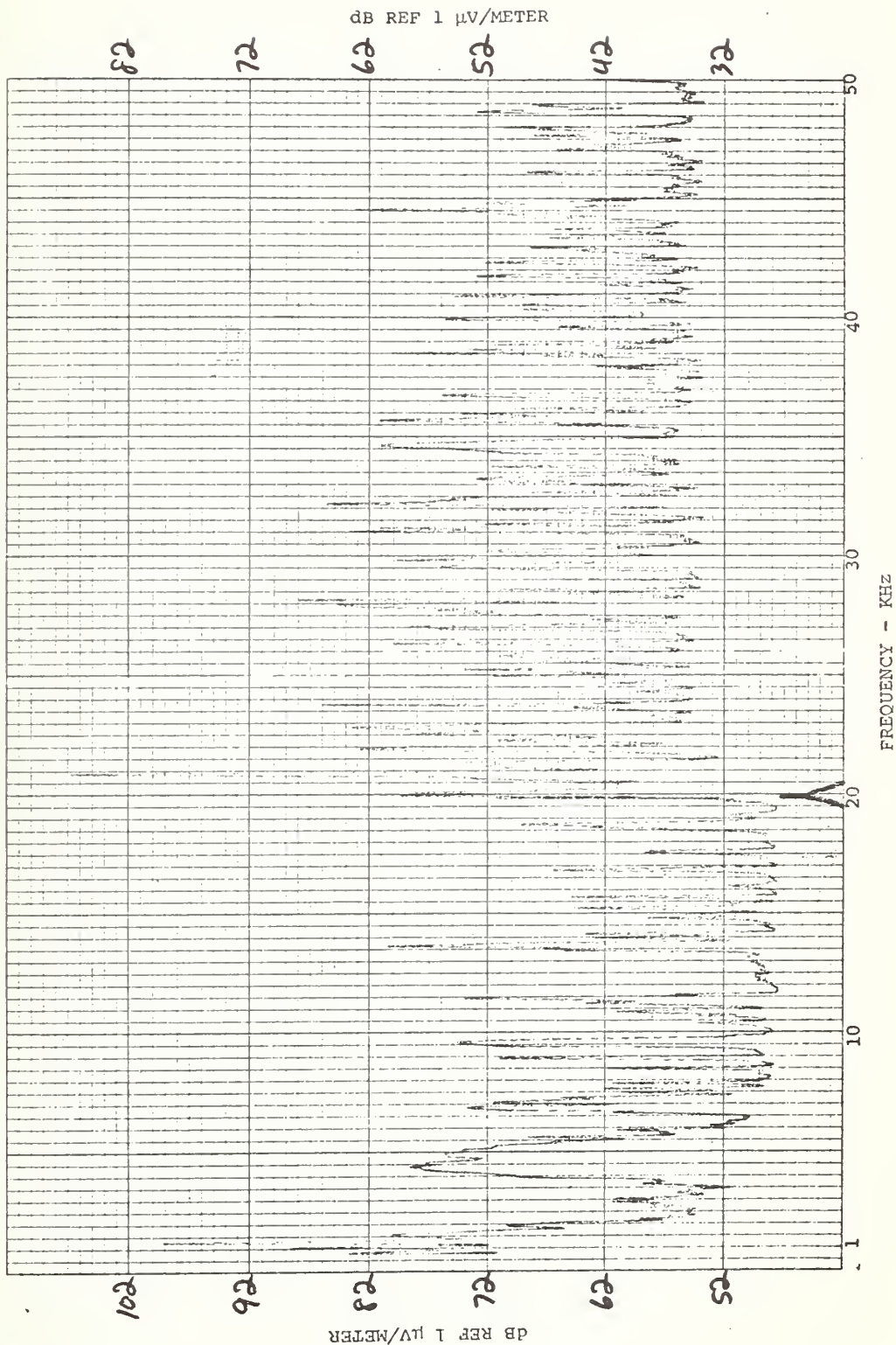
BANDWIDTH 50 Hz
DATE 7-28-72

TEST TYPE ESR E/W
TEST EQUIP. EMC-10

TEST NO. 303
TEST SPECIMEN 8611



TEST NO. 304 TEST TYPE ESR FW BANDWIDTH 50 Hz 1140
 TEST SPECIMEN 2611 TEST EQUIP. EMC-16 DATE 7-28-72 EG

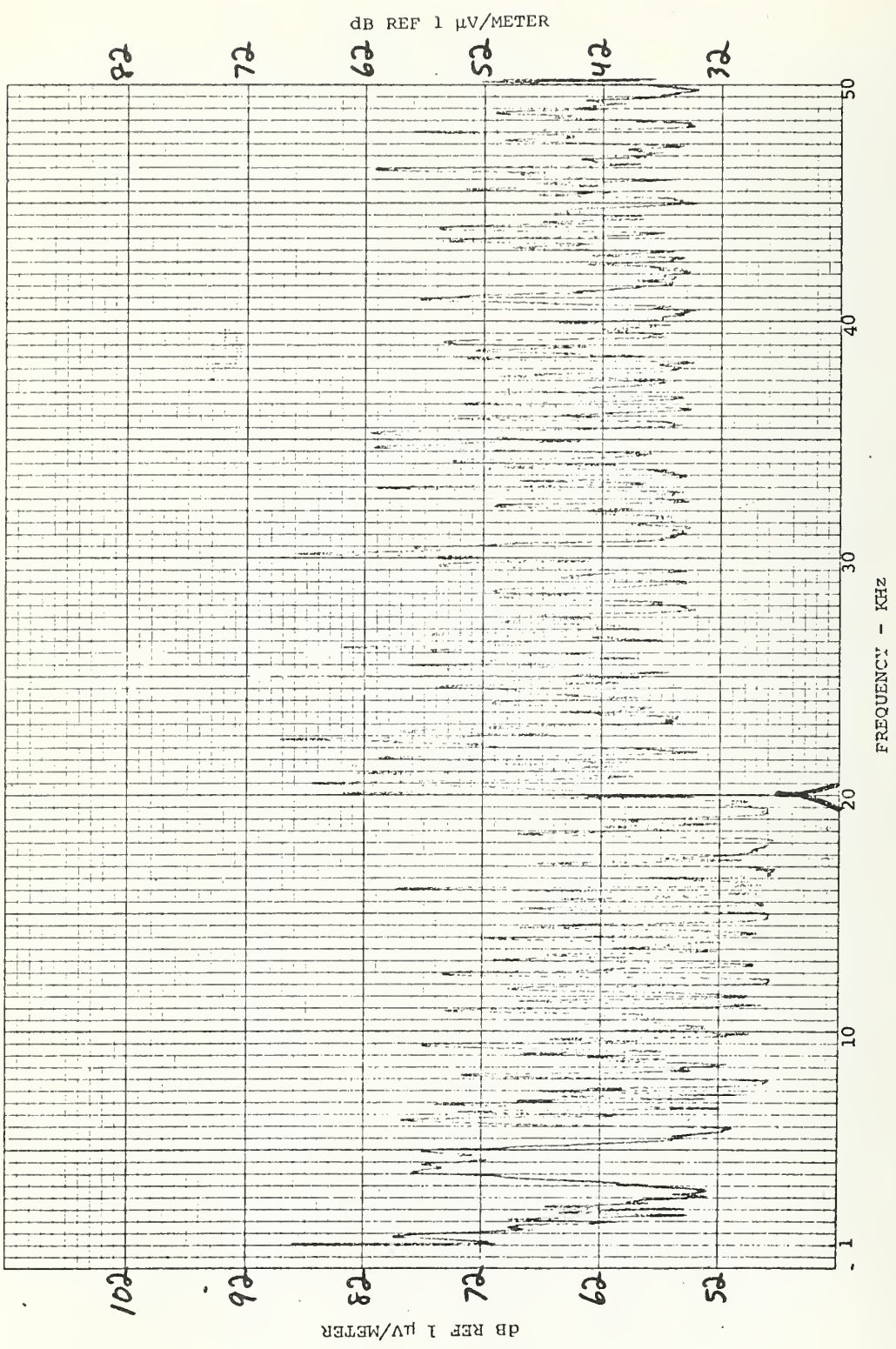


1127
Eg

BANDWIDTH 50 Hz
DATE 7-28-72

TEST TYPE ESR N/S
TEST EQUIP. EMC-10

TEST NO. 301
TEST SPECIMEN 2-11



1130
884

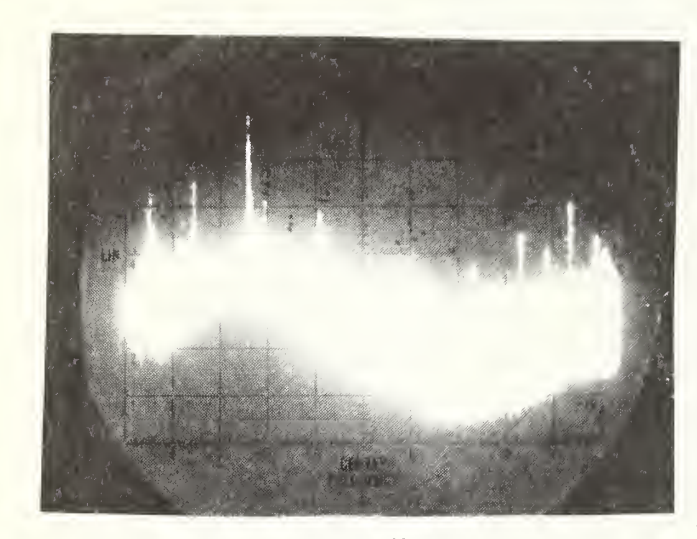
BANDWIDTH 50 Hz
DATE 7-28-72

TEST TYPE ESR N/S
TEST EQUIP. EMC-10

TEST NO. 302
TEST SPECIMEN 302 II



LOCATION: SITE 11 TYPE TEST ESR DATE 7-28-72



50 FREQ. 75 KHz 100

153
133
113
93
73
dB REF 1 μ V/METER/MHz

TEST 305
TIME 1147

FREQ. SCAN: 5 KHz/Div.

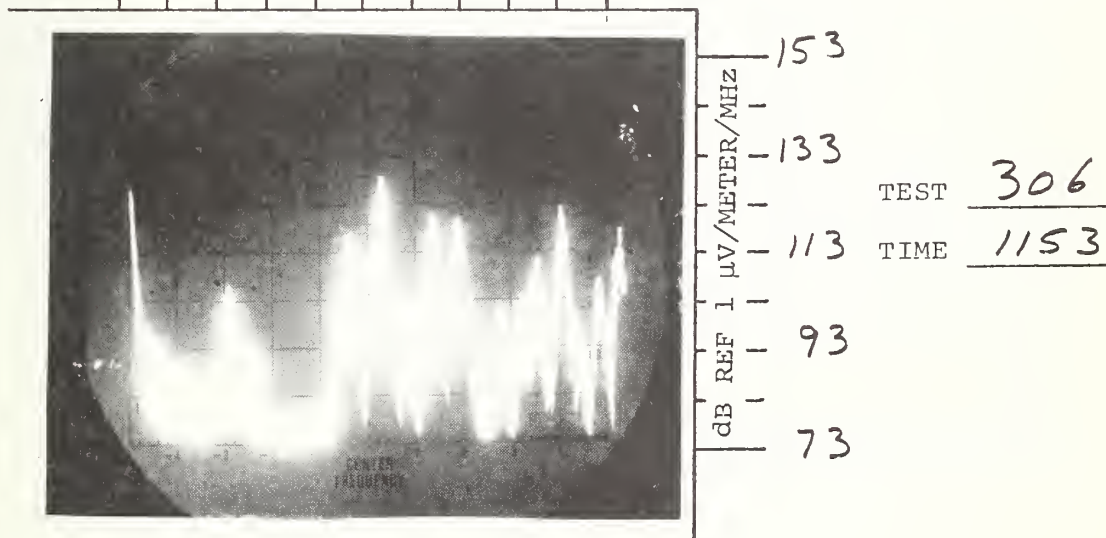
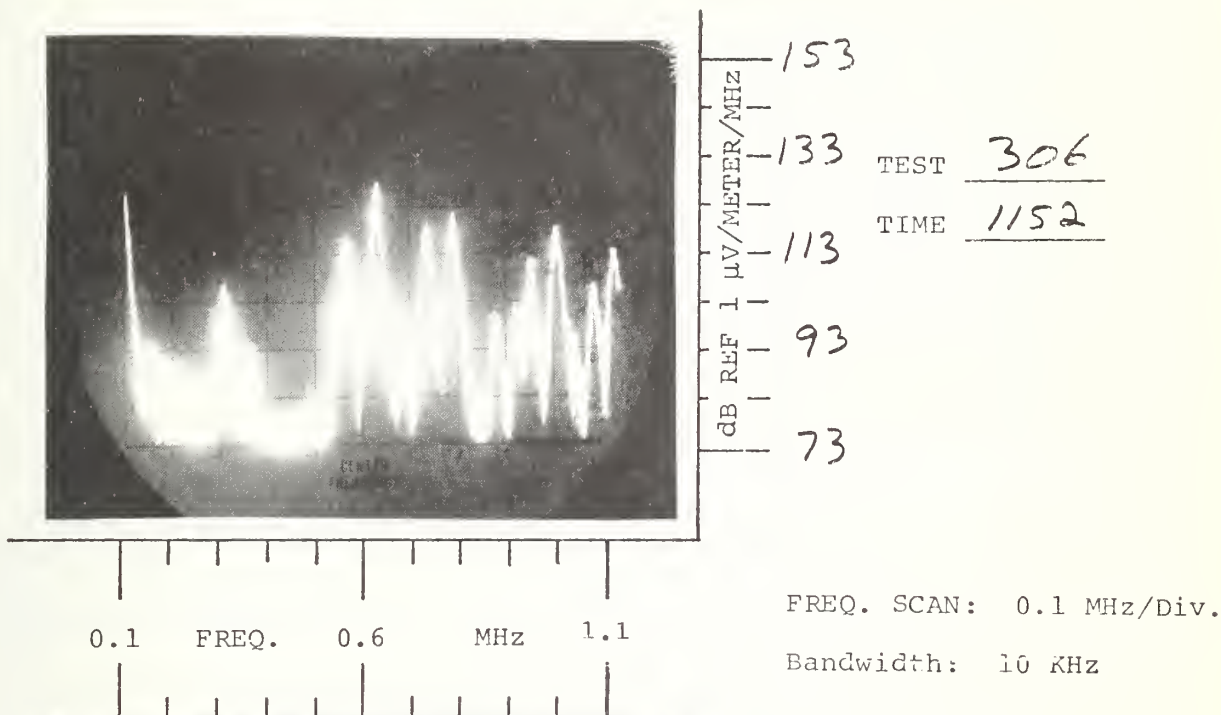
Bandwidth: 10 KHz



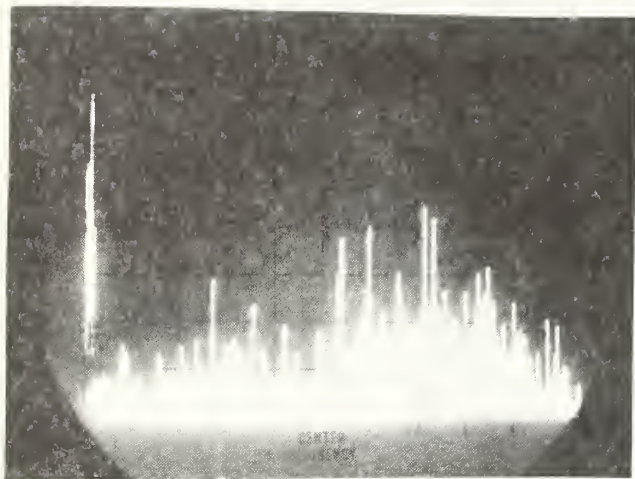
153
133
113
93
73
dB REF 1 μ V/METER/MHz

TEST 305
TIME 1149

LOCATION: SITE 11 TYPE TEST ESR DATE 7-28-72



LOCATION: SITE 11 TYPE TEST ESR DATE 7-28-72



153
133
113
93
73

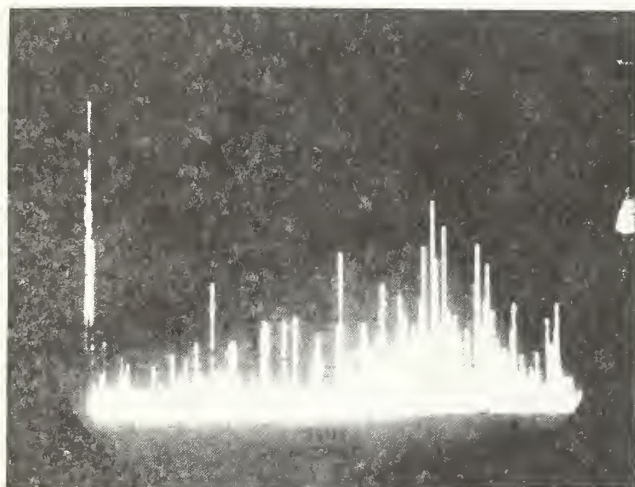
dB REF 1 μ V/METER/MHz

TEST 307
TIME 1155

1 FREQ. 11 MHz 21

FREQ. SCAN: 2MHz/Div.

Bandwidth: 10 KHz

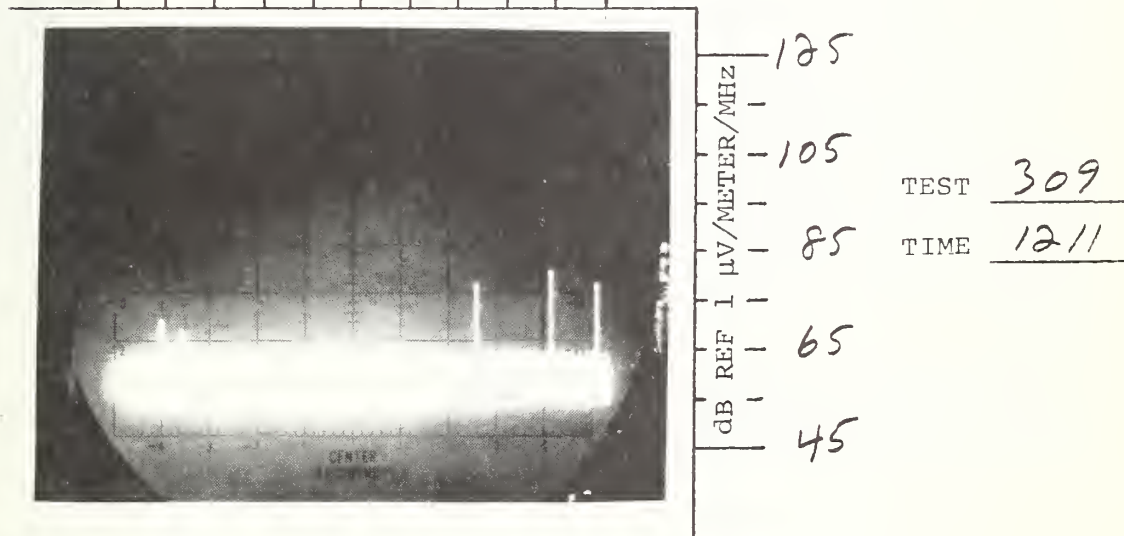
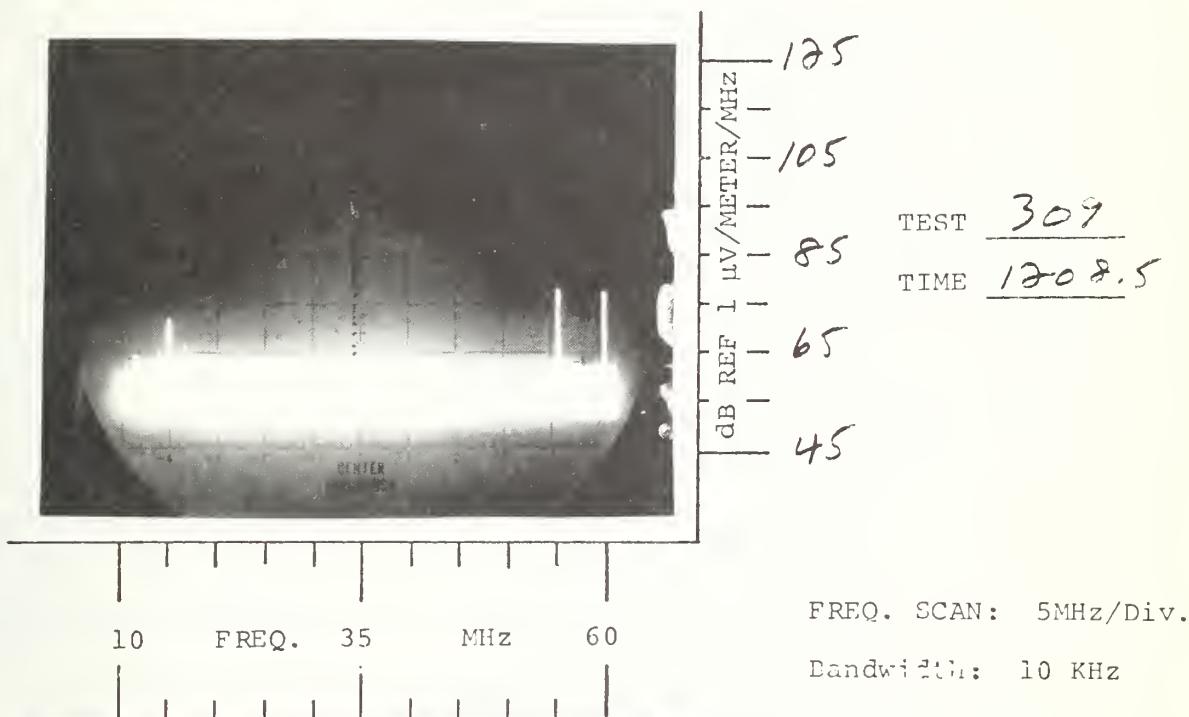


153
133
113
93
73

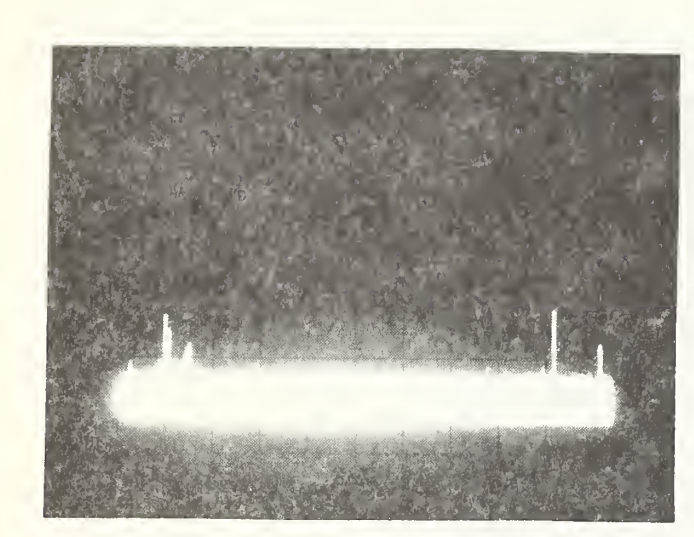
dB REF 1 μ V/METER/MHz

TEST 307
TIME 1157

LOCATION: SITE 11 TYPE TEST ESR E/W DATE 7-20-72



LOCATION: SITE 11 TYPE TEST ESR N/S DATE 7-28-72



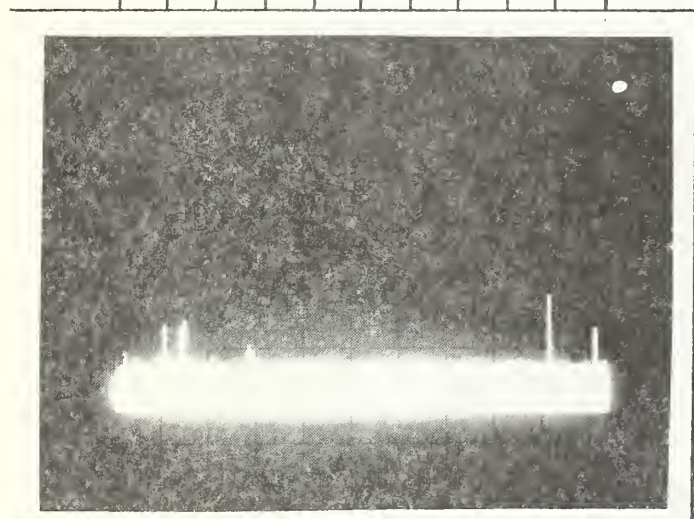
125
105
85
65
45
dB REF 1 μ V/METER/MHz

TEST 308
TIME 1205

10 FREQ. 35 MHz 60

FREQ. SCAN: 5MHz/Div.

Bandwidth: 10 KHz



125
105
85
65
45
dB REF 1 μ V/METER/MHz

TEST 308
TIME 1207

7/27/72

TRANSPORT 72 COMPUTER SYSTEM START UP

RESTRICTIONS?
NEW CONFIGURATION? Y
CONFIGURATION CHANGE
ELECTRICITY?
CLASS 2 FAILURE - VEHICLE A

CLASS 2 FAILURE - VEHICLE B
S

ARRIVAL FOR A, B, E, F, G, H, I ONLY?

CONFIGURATION (A-U): A

VEHICLE(S) (A, B, E): 2

CONFIGURED

CONFIGURATION MORE OPERATING VEHICLE

A S A, B

READY Y

READY

ELECTRICITY? Y

REC'D ELECTRICIFICATION

READY

VEHICLE A EMERGENCY STOP AT STATION S

ARRIVAL VEH P STA S AT 00:03:52

SCHEDULED ARRIVAL 00:02:53

VEH A IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH A STA N AT 00:04:16

SCHEDULED ARRIVAL 00:03:36

T-X=00:26:00

TIME 00:26:00

ARRIVAL VEH A STA C AT 00:26:22

SCHEDULED ARRIVAL 00:25:23

ARRIVAL VEH B STA N AT 00:26:30

SCHEDULED ARRIVAL 00:25:03

VEH A IMPROPER BERTHING AT STATION S - UNDERSHOOT

ARRIVAL VEH A STA S AT 00:27:50

SCHEDULED ARRIVAL 00:26:12

ARRIVAL VEH B STA C AT 00:28:35

SCHEDULED ARRIVAL 00:25:49

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 00:29:15

SCHEDULED ARRIVAL 00:27:22

SCHEDULE RE-ADJUSTED FOR VEHICLE A

CLASS 1 FAILURE - VEHICLE B

K

CLEAR ALARM

A

TRANSPORT 72 COMPUTER SYSTEM START UP

RESTRICTIONS?

NEW CONFIGURATION?

ELECTRICITY? Y

REC'D ELECTRICIFICATION

READY

T-X=00:33:35

TIME 00:32:03

T

VEHICLE A EMERGENCY STOP AT STATION S

ARRIVAL VEH B STA S AT 00:32:05

SCHEDULED ARRIVAL 00:30:21

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 00:32:01

SCHEDULED ARRIVAL 00:30:50

SCHEDULE RE-ADJUSTED FOR VEHICLE A

T-X=00:33:35

TIME 00:32:18

T-X=00:33:35

TIME 00:32:00

VEH A IN SECTION 4 MORE THAN 30 SECONDS

VEH A IMPROPER BERTHING AT STATION S - OVERSHOOT

ARRIVAL VEH B STA N AT 00:32:05

SCHEDULED ARRIVAL 00:30:21

ARRIVAL VEH A STA S AT 00:32:05

SCHEDULED ARRIVAL 00:30:21

VEH P IMPROPER BERTHING AT STATION N - UNDERSHOOT

VEH P IMPROPER BERTHING AT STATION N - OVERSHOOT

ARRIVAL VEH P STA N AT 00:32:01

SCHEDULED ARRIVAL 00:30:53

SCHEDULE RE-ADJUSTED FOR VEHICLE P

ARRIVAL VEH P STA C AT 00:41:21

SCHEDULED ARRIVAL 00:39:51

ARRIVAL VEH A STA N AT 00:41:45

SCHEDULED ARRIVAL 00:35:55

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH P STA S AT 00:42:27

SCHEDULED ARRIVAL 00:40:40

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 00:42:53

SCHEDULED ARRIVAL 00:42:34

CLASS 3 FAILURE - VEHICLE B

ARRIVAL VEH B STA N AT 00:43:56

SCHEDULED ARRIVAL 00:43:48

ARRIVAL VEH A STA S AT 00:44:03

SCHEDULED ARRIVAL 00:43:22

ARRIVAL VEH B STA C AT 00:45:41

SCHEDULED ARRIVAL 00:44:34

ARRIVAL VEH A STA N AT 00:46:02

SCHEDULED ARRIVAL 00:44:32

ARRIVAL VEH B STA S AT 00:46:43

SCHEDULED ARRIVAL 00:45:23

ARRIVAL VEH A STA C AT 00:47:09

SCHEDULED ARRIVAL 00:45:19

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 00:48:10

SCHEDULED ARRIVAL 00:46:33

ARRIVAL VEH A STA S AT 00:48:19

SCHEDULED ARRIVAL 00:48:08

ARRIVAL VEH B STA C AT 00:49:25

SCHEDULED ARRIVAL 00:47:20

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 00:49:45

SCHEDULED ARRIVAL 00:49:19

ARRIVAL VEH B STA S AT 00:50:27

SCHEDULED ARRIVAL 00:50:24

ARRIVAL VEH A STA C AT 00:50:53

SCHEDULED ARRIVAL 00:50:06

ARRIVAL VEH P STA N AT 00:51:48

SCHEDULED ARRIVAL 00:51:35

T-X

ARRIVAL VEH A STA S AT 00:52:04

SCHEDULED ARRIVAL 00:50:54

ARRIVAL VEH P STA C AT 00:52:47

SCHEDULED ARRIVAL 00:52:22

T-X=00

TIME 00:53:08

ARRIVAL VEH B STA S AT 00:53:26

SCHEDULED ARRIVAL 00:53:11

ARRIVAL VEH A STA N AT 00:53:39

SCHEDULED ARRIVAL 00:52:05

ARRIVAL VEH A STA C AT 00:54:30

SCHEDULED ARRIVAL 00:52:52

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 00:54:41

SCHEDULED ARRIVAL 00:54:22

ARRIVAL VEH A STA S AT 00:55:17

SCHEDULED ARRIVAL 00:55:19

ARRIVAL VEH B STA C AT 00:55:53

SCHEDULED ARRIVAL 00:55:09

ARRIVAL VEH P STA S AT 00:56:25

SCHEDULED ARRIVAL 00:55:57

ARRIVAL VEH A STA C AT 09:04:12
SCHEDULED ARRIVAL 09:04:12

TRANSFER TO COMPUTER SYSTEM START UP

RESTRICTIONS?
REL CONFIGURATION?
ELECTRIFY? Y
BEGIN ELECTRIFICATION

READY

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 09:04:15
SCHEDULED ARRIVAL 09:04:15

ARRIVAL VEH B STA A AT 09:04:15
SCHEDULED ARRIVAL 09:04:15

ARRIVAL VEH A STA C AT 09:04:17
SCHEDULED ARRIVAL 09:04:17

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH C STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA A AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

TRANSFER TO COMPUTER SYSTEM START UP

RESTRICTIONS?
REL CONFIGURATION?
ELECTRIFY? Y
BEGIN ELECTRIFICATION

READY

ARRIVAL VEH A STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA N AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA N AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

SCHEDULE RE-ADJUSTED FOR VEHICLE B

SCHEDULE RE-ADJUSTED FOR VEHICLE A

CLASS 1 FAILURE - VEHICLE B

OK

CLEAR ALARM

TRANSFER TO COMPUTER SYSTEM START UP

RESTRICTIONS?
REL CONFIGURATION?
ELECTRIFY? Y
BEGIN ELECTRIFICATION

READY

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA B AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH C STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA B AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH C STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

SCHEDULE RE-ADJUSTED FOR VEHICLE B

VEH B IN SECTION 4, LINE 100, 30, 100, 100

VEH B IN SECTION 4, LINE 100, 30, 100, 100

ARRIVAL VEH B STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA N AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA N AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA B AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA N AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA N AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA S AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA N AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH A STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA B AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH C STA C AT 09:04:19
SCHEDULED ARRIVAL 09:04:19

ARRIVAL VEH B STA C AT 09:39:10
SCHEDULED ARRIVAL 09:39:10

ARRIVAL VEH B STA B AT 09:39:16
SCHEDULED ARRIVAL 09:39:16

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA B AT 09:39:43
SCHEDULED ARRIVAL 09:39:43

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 09:39:43
SCHEDULED ARRIVAL 09:39:43

ARRIVAL VEH F STA A AT 09:39:44
SCHEDULED ARRIVAL 09:39:49

ARRIVAL VEH A STA B AT 09:40:34
SCHEDULED ARRIVAL 09:40:34

ARRIVAL VEH F STA C AT 09:40:39
SCHEDULED ARRIVAL 09:40:46

ARRIVAL VEH B STA S AT 09:41:16
SCHEDULED ARRIVAL 09:41:34

ARRIVAL VEH A STA N AT 09:42:09
SCHEDULED ARRIVAL 09:41:34

ARRIVAL VEH A STA C AT 09:43:03
SCHEDULED ARRIVAL 09:42:21

ARRIVAL VEH F STA W AT 09:43:19
SCHEDULED ARRIVAL 09:42:45

ARRIVAL VEH A STA S AT 09:44:01
SCHEDULED ARRIVAL 09:43:10

ARRIVAL VEH B STA C AT 09:44:26
SCHEDULED ARRIVAL 09:43:31

ARRIVAL VEH B STA S AT 09:45:29
SCHEDULED ARRIVAL 09:44:21

ARRIVAL VEH A STA N AT 09:45:33
SCHEDULED ARRIVAL 09:44:21

ARRIVAL VEH A STA C AT 09:46:27
SCHEDULED ARRIVAL 09:45:08

ARRIVAL VEH F STA N AT 09:46:36
SCHEDULED ARRIVAL 09:45:32

ARRIVAL VEH A STA S AT 09:47:24
SCHEDULED ARRIVAL 09:45:57

ARRIVAL VEH B STA C AT 09:47:49
SCHEDULED ARRIVAL 09:46:19

ARRIVAL VEH B STA S AT 09:49:07
SCHEDULED ARRIVAL 09:47:07

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 09:49:10
SCHEDULED ARRIVAL 09:47:07

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 09:50:42
SCHEDULED ARRIVAL 09:50:01

ARRIVAL VEH P STA N AT 09:50:13
SCHEDULED ARRIVAL 09:50:27

ARRIVAL VEH A STA S AT 09:51:04
SCHEDULED ARRIVAL 09:50:55

ARRIVAL VEH B STA C AT 09:51:29
SCHEDULED ARRIVAL 09:51:16

ARRIVAL VEH B STA S AT 09:53:00
SCHEDULED ARRIVAL 09:52:04

ARRIVAL VEH A STA N AT 09:53:04
SCHEDULED ARRIVAL 09:52:05

ARRIVAL VEH A STA C AT 09:53:57
SCHEDULED ARRIVAL 09:52:53

ARRIVAL VEH B STA N AT 09:54:09
SCHEDULED ARRIVAL 09:53:15

ARRIVAL VEH A STA S AT 09:54:59
SCHEDULED ARRIVAL 09:53:46

ARRIVAL VEH F STA C AT 09:55:16
SCHEDULED ARRIVAL 09:54:41

ARRIVAL VEH A STA F AT 09:55:17
SCHEDULED ARRIVAL 09:54:41

ARRIVAL VEH A STA N AT 09:56:11
SCHEDULED ARRIVAL 09:54:50

ARRIVAL VEH A STA C AT 09:56:15
SCHEDULED ARRIVAL 09:55:49

ARRIVAL VEH B STA A AT 09:57:16
SCHEDULED ARRIVAL 09:56:07

ARRIVAL VEH A STA A AT 09:58:11
SCHEDULED ARRIVAL 09:56:46

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 09:58:37
SCHEDULED ARRIVAL 09:58:49

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH F STA S AT 10:00:04
SCHEDULED ARRIVAL 09:59:35

ARRIVAL VEH A STA N AT 10:00:07
SCHEDULED ARRIVAL 09:59:32

ARRIVAL VEH A STA C AT 10:01:16
SCHEDULED ARRIVAL 10:00:19

ARRIVAL VEH B STA N AT 10:01:16
SCHEDULED ARRIVAL 10:00:46

ARRIVAL VEH A STA S AT 10:01:53
SCHEDULED ARRIVAL 10:01:09

ARRIVAL VEH B STA C AT 10:02:23
SCHEDULED ARRIVAL 10:01:33

ARRIVAL VEH B STA S AT 10:02:39
SCHEDULED ARRIVAL 10:02:22

ARRIVAL VEH A STA N AT 10:03:42
SCHEDULED ARRIVAL 10:02:19

ARRIVAL VEH A STA C AT 10:04:36
SCHEDULED ARRIVAL 10:03:06

ARRIVAL VEH B STA N AT 10:04:47
SCHEDULED ARRIVAL 10:03:33

ARRIVAL VEH A STA S AT 10:05:33
SCHEDULED ARRIVAL 10:03:53

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 10:05:56
SCHEDULED ARRIVAL 10:04:20

ARRIVAL VEH F STA S AT 10:06:57
SCHEDULED ARRIVAL 10:05:09

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 10:07:00
SCHEDULED ARRIVAL 10:06:53

R

TRANSP0 '72 COMPUTER SYSTEM START UP

RESTRICTIONS?
NEW CONFIGURATION?
ELECTRIFY? Y
BEGIN ELECTRIFICATION

READY

ARRIVAL VEH A STA C AT 10:08:31
SCHEDULED ARRIVAL 10:08:35

ARRIVAL VEH B STA N AT 10:08:42
SCHEDULED ARRIVAL 10:09:36

ARRIVAL VEH A STA S AT 10:09:35
SCHEDULED ARRIVAL 10:09:24

ARRIVAL VEH F STA C AT 10:10:28
SCHEDULED ARRIVAL 10:10:24

R

TRANSP0 '72 COMPUTER SYSTEM START UP

RESTRICTIONS?
NEW CONFIGURATION?
ELECTRIFY? Y
BEGIN ELECTRIFICATION

1
SCHEDULE RE-ADJUSTED FOR VEHICLE G

ARRIVAL VEH A STA B AT 10:15:16
SCHEDULED ARRIVAL 10:15:16

SCHEDULE RE-ADJUSTED FOR VEHICLE D

ARRIVAL VEH A STA B AT 10:15:19
SCHEDULED ARRIVAL 10:15:16

SCHEDULE RE-ADJUSTED FOR VEHICLE A
TIME 10:25:00

ARRIVAL VEH A STA S AT 10:25:21
SCHEDULED ARRIVAL 10:25:10

ARRIVAL VEH B STA M AT 10:25:33
SCHEDULED ARRIVAL 10:25:36

ARRIVAL VEH A STA S AT 10:26:16
SCHEDULED ARRIVAL 10:25:59

ARRIVAL VEH B STA C AT 10:26:43
SCHEDULED ARRIVAL 10:26:25

ARRIVAL VEH B STA S AT 10:27:41
SCHEDULED ARRIVAL 10:27:14

ARRIVAL VEH A STA K AT 10:27:45
SCHEDULED ARRIVAL 10:27:16

ARRIVAL VEH G STA C AT 10:28:37
SCHEDULED ARRIVAL 10:27:57

ARRIVAL VEH B STA B AT 10:28:46
SCHEDULED ARRIVAL 10:28:25

ARRIVAL VEH A STA S AT 10:29:34
SCHEDULED ARRIVAL 10:28:46

ARRIVAL VEH B STA C AT 10:29:59
SCHEDULED ARRIVAL 10:29:12

ARRIVAL VEH B STA S AT 10:30:59
SCHEDULED ARRIVAL 10:30:01

ARRIVAL VEH A STA N AT 10:31:02
SCHEDULED ARRIVAL 10:29:56

ARRIVAL VEH A STA C AT 10:31:55
SCHEDULED ARRIVAL 10:30:44

ARRIVAL VEH B STA N AT 10:32:07
SCHEDULED ARRIVAL 10:31:11

ARRIVAL VEH A STA S AT 10:32:51
SCHEDULED ARRIVAL 10:31:33

ARRIVAL VEH P STA C AT 10:33:16
SCHEDULED ARRIVAL 10:31:58

ARRIVAL VEH P STA S AT 10:34:16
SCHEDULED ARRIVAL 10:33:47

ARRIVAL VEH A STA N AT 10:34:20
SCHEDULED ARRIVAL 10:33:43

ARRIVAL VEH A STA C AT 10:35:13
SCHEDULED ARRIVAL 10:33:30

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 10:35:25
SCHEDULED ARRIVAL 10:33:58

ARRIVAL VEH A STA S AT 10:36:09
SCHEDULED ARRIVAL 10:36:12

ARRIVAL VEH P STA C AT 10:36:34
SCHEDULED ARRIVAL 10:36:15

SCHEDULE RE-ADJUSTED FOR VEHICLE D
TIME 10:40:00
HISTORICAL RECORD

1
10:40:00
10:40:00

ARRIVAL VEH C STA S AT 10:40:07
SCHEDULED ARRIVAL 10:40:04

SCHEDULE RE-ADJUSTED FOR VEHICLE D

ARRIVAL VEH A STA S AT 10:40:14
SCHEDULED ARRIVAL 10:40:10

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 10:43:56
SCHEDULED ARRIVAL 10:43:56

ARRIVAL VEH B STA N AT 10:44:08
SCHEDULED ARRIVAL 10:44:12

ARRIVAL VEH A STA S AT 10:44:56
SCHEDULED ARRIVAL 10:44:51

ARRIVAL VEH P STA C AT 10:45:22
SCHEDULED ARRIVAL 10:45:01

ARRIVAL VEH B STA S AT 10:47:15
SCHEDULED ARRIVAL 10:46:49

ARRIVAL VEH A STA N AT 10:47:19
SCHEDULED ARRIVAL 10:46:08

ARRIVAL VEH A STA C AT 10:48:12
SCHEDULED ARRIVAL 10:46:47

ARRIVAL VEH B STA N AT 10:48:23
SCHEDULED ARRIVAL 10:47:08

ARRIVAL VEH A STA S AT 10:48:09
SCHEDULED ARRIVAL 10:47:36

ARRIVAL VEH B STA C AT 10:49:33
SCHEDULED ARRIVAL 10:47:47

SCHEDULE RE-ADJUSTED FOR VEHICLE E

ARRIVAL VEH B STA S AT 10:50:03
SCHEDULED ARRIVAL 10:50:32

ARRIVAL VEH A STA N AT 10:51:52
SCHEDULED ARRIVAL 10:49:47

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 10:51:44
SCHEDULED ARRIVAL 10:51:43

ARRIVAL VEH B STA N AT 10:51:54
SCHEDULED ARRIVAL 10:51:43

ARRIVAL VEH A STA S AT 10:52:45
SCHEDULED ARRIVAL 10:52:37

ARRIVAL VEH P STA C AT 10:53:09
SCHEDULED ARRIVAL 10:52:29

ARRIVAL VEH B STA S AT 10:57:39
SCHEDULED ARRIVAL 10:53:15

SCHEDULE RE-ADJUSTED FOR VEHICLE D

ARRIVAL VEH A STA N AT 10:57:43
SCHEDULED ARRIVAL 10:53:44

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 10:58:35
SCHEDULED ARRIVAL 10:58:34

ARRIVAL VEH B STA N AT 10:58:46
SCHEDULED ARRIVAL 10:59:00

ARRIVAL VEH A STA S AT 10:59:37
SCHEDULED ARRIVAL 10:59:28

ARRIVAL VEH P STA C AT 11:00:01
SCHEDULED ARRIVAL 10:59:45

ARRIVAL VEH B STA S AT 11:00:57
SCHEDULED ARRIVAL 11:00:36

ARRIVAL VEH A STA N AT 11:00:11
SCHEDULED ARRIVAL 11:00:57

ARRIVAL VEH A STA C AT 11:00:04
SCHEDULED ARRIVAL 11:00:04

SCHEDULE RE-ADJUSTED FOR VEHICLE C

ARRIVAL VEH F STA N AT 11:03:16
SCHEDULED ARRIVAL 11:01:47

ARRIVAL VEH A STA S AT 11:04:06
SCHEDULED ARRIVAL 11:04:03

ARRIVAL VEH F STA C AT 11:04:24
SCHEDULED ARRIVAL 11:03:34

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH F STA S AT 11:06:44
SCHEDULED ARRIVAL 11:06:38

ARRIVAL VEH A STA N AT 11:06:47
SCHEDULED ARRIVAL 11:05:21

ARRIVAL VEH A STA C AT 11:07:39
SCHEDULED ARRIVAL 11:06:08

ARRIVAL VEH B STA N AT 11:07:51
SCHEDULED ARRIVAL 11:07:41

ARRIVAL VEH A STA S AT 11:08:36
SCHEDULED ARRIVAL 11:06:57

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 11:09:01
SCHEDULED ARRIVAL 11:08:27

ARRIVAL VEH B STA S AT 11:09:59
SCHEDULED ARRIVAL 11:09:17

ARRIVAL VEH A STA N AT 11:10:02
SCHEDULED ARRIVAL 11:09:56

ARRIVAL VEH A STA C AT 11:10:55
SCHEDULED ARRIVAL 11:10:44

ARRIVAL VEH B STA N AT 11:11:21
SCHEDULED ARRIVAL 11:10:27

ARRIVAL VEH A STA S AT 11:12:03
SCHEDULED ARRIVAL 11:11:32

ARRIVAL VEH B STA C AT 11:12:07
SCHEDULED ARRIVAL 11:11:14

ARRIVAL VEH B STA S AT 11:13:43
SCHEDULED ARRIVAL 11:12:03

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 11:13:46
SCHEDULED ARRIVAL 11:12:43

ARRIVAL VEH A STA C AT 11:14:37
SCHEDULED ARRIVAL 11:13:30

ARRIVAL VEH B STA N AT 11:25:41
SCHEDULED ARRIVAL 11:14:53

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 11:25:49
SCHEDULED ARRIVAL 11:14:09

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 11:26:29
SCHEDULED ARRIVAL 11:26:32

ARRIVAL VEH A STA N AT 11:26:52
SCHEDULED ARRIVAL 11:27:10

ARRIVAL VEH B STA S AT 11:28:08
SCHEDULED ARRIVAL 11:27:28

ARRIVAL VEH B STA C AT 11:28:36
SCHEDULED ARRIVAL 11:27:56

ARRIVAL VEH F STA N AT 11:30:01
SCHEDULED ARRIVAL 11:29:58

ARRIVAL VEH A STA S AT 11:30:07
SCHEDULED ARRIVAL 11:29:46

ARRIVAL VEH F STA C AT 11:30:53
SCHEDULED ARRIVAL 11:29:16

ARRIVAL VEH A STA N AT 11:31:43
SCHEDULED ARRIVAL 11:29:57

SCHEDULE RE-ADJUSTED FOR VEHICLE A
T=11:

ILLEGAL COMMAND

READY

ARRIVAL VEH B STA S AT 11:32:26
SCHEDULED ARRIVAL 11:30:14

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 11:32:51
SCHEDULED ARRIVAL 11:32:30

ARRIVAL VEH B STA N AT 11:33:56
SCHEDULED ARRIVAL 11:33:46

ARRIVAL VEH A STA S AT 11:33:57
SCHEDULED ARRIVAL 11:33:21

VEH A IN SECTION 9 MORE THAN 30 SECONDS

ARRIVAL VEH B STA C AT 11:36:09
SCHEDULED ARRIVAL 11:34:31

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 11:36:28
SCHEDULED ARRIVAL 11:34:30

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 11:37:10
SCHEDULED ARRIVAL 11:37:08

ARRIVAL VEH A STA C AT 11:37:35
SCHEDULED ARRIVAL 11:37:17

VEH B IN SECTION 7 MORE THAN 30 SECONDS

ARRIVAL VEH A STA S AT 11:38:46
SCHEDULED ARRIVAL 11:38:06

ARRIVAL VEH B STA N AT 11:39:52
SCHEDULED ARRIVAL 11:38:23

ARRIVAL VEH B STA C AT 11:42:41
SCHEDULED ARRIVAL 11:39:10

ARRIVAL VEH A STA N AT 11:41:01
SCHEDULED ARRIVAL 11:39:15

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 11:41:43
SCHEDULED ARRIVAL 11:39:59

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 11:42:08
SCHEDULED ARRIVAL 11:41:50

ARRIVAL VEH B STA N AT 11:43:06
SCHEDULED ARRIVAL 11:43:02

ARRIVAL VEH A STA S AT 11:43:11
SCHEDULED ARRIVAL 11:42:39

ARRIVAL VEH F STA C AT 11:43:54
SCHEDULED ARRIVAL 11:43:50

ARRIVAL VEH A STA N AT 11:44:13
SCHEDULED ARRIVAL 11:43:50

ARRIVAL VEH B STA S AT 11:44:52
SCHEDULED ARRIVAL 11:44:41

ARRIVAL VEH A STA C AT 11:45:18
SCHEDULED ARRIVAL 11:44:37

ARRIVAL VEH B STA N AT 11:46:16
SCHEDULED ARRIVAL 11:45:51

ARRIVAL VEH A STA B AT 11:46:41
SCHEDULED ARRIVAL 11:46:40

ARRIVAL VEH B STA C AT 11:47:06
SCHEDULED ARRIVAL 11:46:36

ARRIVAL VEH A STA B AT 11:47:44
SCHEDULED ARRIVAL 11:46:37

ARRIVAL VEH B STA S AT 11:48:05
SCHEDULED ARRIVAL 11:47:37

ARRIVAL VEH A STA C AT 11:48:31
SCHEDULED ARRIVAL 11:47:24

ARRIVAL VEH B STA N AT 11:49:29
SCHEDULED ARRIVAL 11:48:38

ARRIVAL VEH A STA S AT 11:49:35
SCHEDULED ARRIVAL 11:48:13

ARRIVAL VEH B STA C AT 11:50:19
SCHEDULED ARRIVAL 11:49:25

ARRIVAL VEH A STA N AT 11:50:37
SCHEDULED ARRIVAL 11:49:24

ARRIVAL VEH B STA S AT 11:51:18
SCHEDULED ARRIVAL 11:50:14

ARRIVAL VEH A STA C AT 11:51:44
SCHEDULED ARRIVAL 11:50:11

ARRIVAL VEH B STA N AT 11:52:41
SCHEDULED ARRIVAL 11:51:25

ARRIVAL VEH A STA S AT 11:52:52
SCHEDULED ARRIVAL 11:51:00

SCHEDULE RE-ADJUSTED FOR VEHICLE A
T=12
ARRIVAL VEH B STA C AT 11:53:31
SCHEDULED ARRIVAL 11:52:18
T=12:03:00
TIME 12:53:49

ARRIVAL VEH A STA N AT 12:53:54
SCHEDULED ARRIVAL 12:54:12
T=12:11:00
TIME 12:01:20

ARRIVAL VEH B STA S AT 12:01:22
SCHEDULED ARRIVAL 11:59:00

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 12:01:47
SCHEDULED ARRIVAL 12:01:00

ARRIVAL VEH B STA N AT 12:04:05
SCHEDULED ARRIVAL 12:02:41

ARRIVAL VEH A STA S AT 12:04:11
SCHEDULED ARRIVAL 12:01:47

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 12:05:07
SCHEDULED ARRIVAL 12:03:28

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 12:05:26
SCHEDULED ARRIVAL 12:05:32

ARRIVAL VEH B STA S AT 12:06:07
SCHEDULED ARRIVAL 12:06:06

ARRIVAL VEH A STA C AT 12:06:33
SCHEDULED ARRIVAL 12:06:21

ARRIVAL VEH B STA N AT 12:07:29
SCHEDULED ARRIVAL 12:07:24

VEH B IN SECTION 0 MORE THAN 30 SECONDS

ARRIVAL VEH A STA S AT 12:08:11
SCHEDULED ARRIVAL 12:07:09

ARRIVAL VEH B STA C AT 12:08:35
SCHEDULED ARRIVAL 12:08:11

ARRIVAL VEH B STA S AT 12:09:34
SCHEDULED ARRIVAL 12:09:18

ARRIVAL VEH A STA N AT 12:09:38
SCHEDULED ARRIVAL 12:08:29

ARRIVAL VEH A STA C AT 12:10:32
SCHEDULED ARRIVAL 12:10:17

ARRIVAL VEH B STA N AT 12:11:43
SCHEDULED ARRIVAL 12:11:11

VEH B IN SECTION 0 FOR MORE THAN 30 SECONDS

ARRIVAL VEH A STA S AT 12:11:31
SCHEDULED ARRIVAL 12:11:56

ARRIVAL VEH B STA C AT 12:11:56
SCHEDULED ARRIVAL 12:10:58

ARRIVAL VEH B STA S AT 12:13:11
SCHEDULED ARRIVAL 12:11:46

ARRIVAL VEH A STA N AT 12:13:14
SCHEDULED ARRIVAL 12:11:10

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 12:14:05
SCHEDULED ARRIVAL 12:14:03

ARRIVAL VEH B STA N AT 12:14:20
SCHEDULED ARRIVAL 12:13:57

ARRIVAL VEH A STA S AT 12:15:04
SCHEDULED ARRIVAL 12:14:58

ARRIVAL VEH B STA C AT 12:15:28
SCHEDULED ARRIVAL 12:13:44

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 12:16:31
SCHEDULED ARRIVAL 12:16:27

ARRIVAL VEH A STA N AT 12:16:54
SCHEDULED ARRIVAL 12:16:19

ARRIVAL VEH A STA C AT 12:17:25
SCHEDULED ARRIVAL 12:16:56

ARRIVAL VEH B STA N AT 12:17:38
SCHEDULED ARRIVAL 12:17:01

ARRIVAL VEH A STA S AT 12:18:01
SCHEDULED ARRIVAL 12:17:45

S
SYSTEM SHUT DOWN
S
SYSTEM SHUT DOWN

EMERGENCY - POWER DUMPED
INITIATING SHUT DOWN

SYSTEM SHUT DOWN

EMERGENCY - POWER DUMPED
INITIATING SHUT DOWN

SYSTEM SHUT DOWN

EMERGENCY - POWER DUMPED
INITIATING SHUT DOWN

SYSTEM SHUT DOWN

EMERGENCY - POWER DUMPED
INITIATING SHUT DOWN

SYSTEM SHUT DOWN

E
CLEAR ALARM

STATE SHUT DOWN

INSTRUMENTS COOPERATION STATES STATE OF

RESTRICTIONS
TO BE ENFORCED
ELECTRICITY
SCHEDULING OF THE VEHICLES

46. 2 vehicle
loop in 11022

HE 18.5.A37
no. DOT-TSC-
UMTA- 73-15

U.S. Dept.
Report no

~~4-2~~ BORROWER

ROI

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